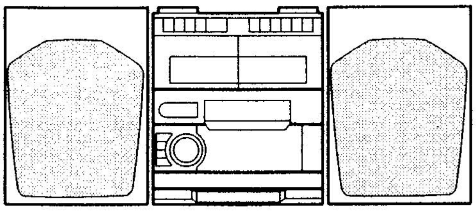
aiwa

aiwa SERVICE

# NSX-A10
# NSX-S10



COMPACT DISC STEREO
CASSETTE RECEIVER

- BASIC TAPE MECHANISM : TN-21ZSW-1716
- BASIC CD MECHANISM : 4ZG–1 BDLNM

- TYPE : U,LH

SERVICE MANUAL

| SYSTEM | CD – CASSEIVER | SPEAKER |
|---|---|---|
| NSX–A10<br>(TYPE : U) | CX – NA10 | SX – NA10 |
| NSX–S10<br>(TYPE : LH) | CX – NS10 | SX – NS10 |

•If requiring information about the CD mechanism, see Service Manual of 4ZG-1, S/M Code No. 09-965-128-10T.

S/M Code No. 09–977–208–5FP

# SPECIFICATIONS

**<FM Tuner section>**

| | |
|---|---|
| **Tuning range** | 87.5 MHz to 108 MHz |
| **Antenna** | Wire antenna |

**<AM Tuner section>**

| | |
|---|---|
| **Tuning range** | 531 kHz to 1602 kHz (9 kHz step)<br>530 kHz to 1710 kHz (10 kHz step) |
| **Antenna** | Loop antenna |

**<Amplifier section>**

| | |
|---|---|
| **Power output** | U :<br>7.5 W/Ch (50 Hz - 20 kHz, T.H.D less than 1%, 6 ohms)<br>LH :<br>15 W + 15 W (T.H.D.10 %, 6 ohms 1 kHz) |
| **Total harmonic distortion** | U :<br>0.3 % (5 W, 1 kHz, 6 ohms, DIN AUDIO)<br>LH :<br>0.3 % (6 W, 1 kHz, 6 ohms, DIN AUDIO) |
| **Inputs** | VIDEO/AUX: 400 mV |
| **Outputs** | SPEAKERS: accept speakers of 6 ohms or more<br>PHONES (stereo jack) : accepts headphones of 32 ohms or more |

**<Cassette deck section>**

| | |
|---|---|
| **Track format** | 4 tracks, 2 channels stereo |
| **Frequency response** | 50 Hz - 10000 Hz |
| **Recording system** | AC bias |
| **Heads** | Deck 1 : Recording/playback/ erase head x 1<br>Deck 2 : Playback head x 1 |

**<Compact disc player section>**

| | |
|---|---|
| **Laser** | Semiconductor laser ($\lambda$ =780 nm) |
| **D-A converter** | 1 bit dual |
| **Signal-to-noise ratio** | 90 dB (1 kHz, 0 dB) |
| **Harmonic distortion** | 0.03% (1 kHz, 0 dB) |
| **Wow and flutter** | Unmeasurable |

**<Speaker system SX–NA10/NS10>**

| | |
|---|---|
| **Cabinet type** | 2 way, bass reflex (magnetic shielded type) |
| **Speakers** | Woofer :<br>120 mm ($4^{3}/_{4}$ in.) cone type<br>Tweeter :<br>10 mm ($^{13}/_{32}$ in.) ceramic type |
| **Impedance** | 6 ohms |
| **Output sound pressure level** | 87 dB/W/m |
| **Dimensions (W x H x D)** | 220 x 302 x 238 mm<br>($8^{3}/_{4}$ x 12 x $9^{3}/_{8}$ in.) |
| **Weight** | 2.5 kg (5lbs 8 oz) |

**<General>**

| | |
|---|---|
| **Power requirements** | U :<br>120 V AC, 60 Hz<br>LH :<br>120 V/220 V-240 V AC, (switchable) 50/60 Hz |
| **Power consumption** | U :<br>40 W<br>LH :<br>50 W |
| **Dimensions of main unit (W x H x D)** | 260 x 308 x 335 mm<br>($10^{1}/_{4}$ x $12^{1}/_{4}$ x $13^{1}/_{4}$ in.) |
| **Weight of main unit** | 4.4 kg (9 lbs 11 oz) |

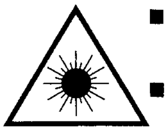
- Design and specifications are subject to change without notice.

# PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs laser. Therefore, be sure to follow carefully the instructions below when servicing.

### WARNING!!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION. BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.



- Caution: Invisible laser radiation when open and interlocks defeated avoid exposure to beam.
- Advarsel: Usynlig laserstålingved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

### VAROITUS!

Laiteen Käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saataa altistaa käyt-täjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

### VARNING!

Om apparaten används på annat sätt än vad som specificeras i denna bruksanvising, kan användaren utsättas för osynling laserstrålning, som överskrider gränsen för laserklass 1.

### CAUTION

Use of controls or adjustments or performance of procedures other than those specified herin may result in hazardous radiation exposure.

### ATTENTION

L'utillisation de commandes, réglages ou procédures autres que ceux spécifiés peut entraîner une dangereuse exposition aux radiations.

### ADVARSEL

Usynlig laserståling ved åbning, når sikkerhedsafbrydereer ude af funktion. Undgå udsættelse for stråling.

This Compact Disc player is classified as a CLASS 1 LASER product.
The CLASS 1 LASER PRODUCT label is located on the rear exterior.

| | |
|---|---|
| CLASS 1 | LASER PRODUCT |
| KLASSE 1 | LASER PRODUKT |
| LUOKAN 1 | LASER LAITE |
| KLASS 1 | LASER APPARAT |

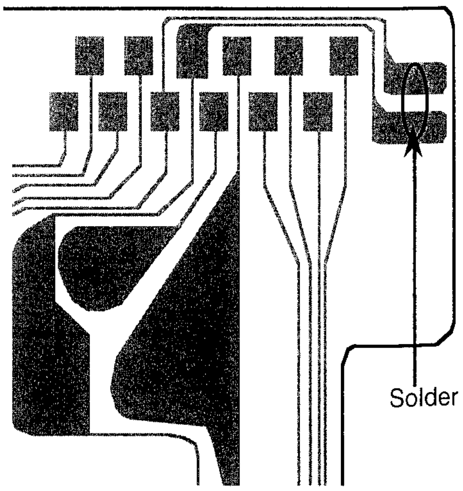
## Precaution to replace Optical block

## (KSS-213B)

Body or clothes electrostatic potential could ruin laser diode in the optical block. Be sure ground body and workbench, and use the clothes do not touch the diode.

1) After the connection, remove solder shown in right figure.

PICK – UP Assy P.C.B.



# ELECTRICAL MAIN PARTS LIST

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

| REF. NO. | PART NO. | KANRI NO. | DESCRIPTION |
|---|---|---|---|
| IC | | | |
| | 87-NFZ-701-010 | | IC,UPD78044HGF-021-3B9 |
| | 87-A20-593-010 | | IC,SPS-442-1-A |
| | 87-017-889-010 | | IC,NJM4558LD |
| | 87-017-804-010 | | IC,BU4052BCP |
| | 87-A20-312-010 | | IC,M62420SP |
| | 86-NFZ-655-010 | | IC,LC27131D(Z) |
| | 86-NFZ-654-010 | | IC,LA1836(Z) |
| TRANSISTOR | | | |
| | 89-213-702-010 | | TR,2SB1370E |
| | 87-026-286-080 | | TR,DTA143ES |
| | 87-026-610-080 | | TR,KTC3198GR |
| | 87-026-218-080 | | TR,DTC144ES |
| | 87-026-292-080 | | TR,DTA144WS |
| | 89-406-555-080 | | TR,2SD655E |
| | 87-026-289-080 | | TR,DTC143XS |
| | 87-A30-092-080 | | FET,2SK439E/F |
| | 89-305-352-380 | | TR,2SC535(B/C) |
| | 89-319-233-080 | | TR,2SC19230 |
| | 87-026-214-080 | | TR,DTA114YS |
| | 87-026-609-080 | | TR,KTA1266GR |
| | 87-A30-083-080 | | TR,CSD1489B |
| | 89-420-612-010 | | TR,2SD2061E |
| DIODE | | | |
| | 87-070-274-080 | | DIODE,1N4003 SEM |
| | 87-070-178-090 | | DIODE,1N5402-BD54 |
| | 87-017-932-080 | | ZENER,MTZJ6.2B |
| | 87-017-933-080 | | ZENER,MTZJ10D |
| | 87-A40-235-080 | | ZENER,MTZJ9.1C |
| | 87-A40-234-080 | | ZENER,MTZJ5.6A |
| | 87-A40-291-080 | | DIODE,1N4148 (CPT) |
| | 87-A40-236-080 | | ZENER,MTZJ24D |
| | 87-020-465-08M | | DIODE,1SS133 |
| MAIN C.B | | | |
| | 86-NFZ-636-010 | | FF-CABLE,6P CD |
| C102 | 87-A10-570-090 | | CAP,E 3300-25 SME |
| C103 | 87-A10-515-090 | | CAP E 2200-25 SME |
| C105 | 87-018-127-080 | | CAP,TCU 470P-50 K B |
| C106 | 87-010-260-080 | | CAP,E 47-25 SME |
| C107 | 87-010-101-080 | | CAP,E 220-16 SME |
| C108 | 87-010-381-080 | | CAP,E 330-16 SME |
| C109 | 87-010-384-080 | | CAP,E 100-25 SME |
| C110 | 87-010-246-080 | | CAP,E 100-25 SME |
| C111 | 87-010-247-080 | | CAP,E 100-50 SME |
| C112 | 87-010-263-080 | | CAP,E 100-10 SME |
| C113 | 87-010-403-080 | | CAP,E 3.3-50 SME |
| C114 | 87-010-374-080 | | CAP,E 47-10 SME |
| C201 | 87-010-545-080 | | CAP,E 0.22-50 SME |
| C202 | 87-010-545-080 | | CAP,E 0.22-50 SME |
| C203 | 87-018-199-080 | | CAP,CER 3300P-16 M X UP050 |
| C204 | 87-018-199-080 | | CAP,CER 3300P-16 M X UP050 |
| C205 | 87-018-199-080 | | CAP,CER 3300P-16 M X UP050 |
| C206 | 87-018-199-080 | | CAP,CER 3300P-16 M X UP050 |
| C207 | 87-010-545-080 | | CAP,E 0.22-50 SME |
| C208 | 87-010-545-080 | | CAP,E 0.22-50 SME |
| C209 | 87-010-221-080 | | CAP,E 470-10 SME |
| C210 | 87-010-221-080 | | CAP,E 470-10 SME |
| C219 | 87-010-544-080 | | CAP,E 0.1-50 SME |
| C220 | 87-010-544-080 | | CAP,E 0.1-50 SME |
| C225 | 87-016-586-080 | | CAP,E 470-25 M SSL |
| C226 | 87-010-408-080 | | CAP,E 47-50 SME |
| C227 | 87-010-405-080 | | CAP,E 10-50 SME |
| C300 | 87-018-209-080 | | CAP,TC U 0.1-50 |
| C301 | 87-018-195-080 | | CAP,CER 1200P-16 M X UP050 |
| C302 | 87-018-195-080 | | CAP,CER 1200P-16 M X UP050 |
| C303 | 87-010-263-080 | | CAP,E 100-10 SME |
| C304 | 87-010-263-080 | | CAP,E 100-10 SME |
| C309 | 87-010-546-080 | | CAP,E 0.33-50 SME |
| C310 | 87-010-546-080 | | CAP,E 0.33-50 SME |
| C311 | 87-018-130-080 | | CAP,TC U 820P-50 B |
| C312 | 87-018-130-080 | | CAP,TC U 820P-50 B |
| C314 | 87-010-260-080 | | CAP,E 47-25 SME |
| C351 | 87-018-195-080 | | CAP,CER 1200P-16 M X UP050 |
| C352 | 87-018-195-080 | | CAP,CER 1200P-16 M X UP050 |
| C353 | 87-010-263-080 | | CAP,E 100-10 SME |
| C354 | 87-010-263-080 | | CAP,E 100-10 SME |
| C360 | 87-010-370-080 | | CAP,E 330-6.3 SME |
| C401 | 87-010-401-080 | | CAP,E 1-50 SME |
| C402 | 87-010-401-080 | | CAP,E 1-50 SME |
| C403 | 87-018-118-080 | | CAP,TCU 82P-50 B |
| C404 | 87-018-118-080 | | CAP,TCU 82P-50 B |
| C452 | 87-010-385-080 | | CAP,E 220-25 SME |
| C458 | 87-018-131-080 | | CAP,TCU 1000P-50 K B UP050 |
| C459 | 87-018-128-080 | | CAP,TCU 560P-50 K B UP050 |
| C461 | 87-018-126-080 | | CAP,TCU 390P-50 B |
| C462 | 87-018-126-080 | | CAP,TCU 390P-50 B |
| C505 | 87-010-401-080 | | CAP,E 1-50 SME |
| C506 | 87-010-401-080 | | CAP,E 1-50 SME |
| C510 | 87-010-405-080 | | CAP,E 10-50 SME |
| C511 | 87-010-260-080 | | CAP,E 47-25 SME |
| C512 | 87-010-260-080 | | CAP,E 47-25 SME |
| C513 | 87-010-221-080 | | CAP,E 470-10 SME |
| C515 | 87-015-951-080 | | CAP,E 1-50 M LL |
| C516 | 87-015-951-080 | | CAP,E 1-50 M LL |
| C518 | 87-018-134-080 | | CAP,TCU 0.01-16 N Y UP050 |
| C701 | 87-010-404-080 | | CAP,E 4.7-50 SME |
| C711 | 87-010-260-080 | | CAP,E 47-25 SME |
| C712 | 87-010-112-080 | | CAP,E 100-16 SME |
| C722 | 87-018-149-080 | | CAP,TCU 15P-50 CH |
| C728 | 87-010-248-080 | | CAP,E 220-10 SME |
| C733 | 87-018-148-080 | | CAP,TCU 12P-50 CH |
| C741 | 87-010-546-080 | | CAP,E 0.33-50 SME |
| C742 | 87-010-546-080 | | CAP,E 0.33-50 SME |
| C771 | 87-010-405-080 | | CAP,E 10-50 SME |
| C773 | 87-018-208-080 | | CAP,TC U 0.047-50 Z F UP050 |
| C774 | 87-010-263-080 | | CAP,E 100-10 SME |
| C775 | 87-010-405-080 | | CAP,E 10-50 SME |
| C777 | 87-010-400-080 | | CAP,E 0.47-50 SME |
| C778 | 87-010-401-080 | | CAP,E 1-50 SME |
| C779 | 87-010-401-080 | | CAP,E 1-50 SME |
| C791 | 87-010-401-080 | | CAP,E 1-50 SME |
| C792 | 87-018-196-080 | | CAP,TC U 1500P-16 M X UP050 |
| C794 | 87-010-260-080 | | CAP,E 47-25 SME |
| C796 | 87-010-403-080 | | CAP,E 3.3-50 SME |
| C799 | 87-010-405-080 | | CAP,E 10-50 SME |
| C801 | 87-018-102-080 | | CAP,TC U 6.8P-50 SL |
| C806 | 87-018-101-080 | | CAP,TC U 5.6P-50 SL |
| C807 | 87-018-102-080 | | CAP,TC U 6.8P-50 SL |
| C808 | 87-018-098-080 | | CAP,TC U 3.3P-50 SL |
| C809 | 87-018-119-080 | | CAP,TC U 100P-50 K B UP050 |
| C811 | 87-018-107-080 | | CAP,TC U 18P-50 SL |
| C815 | 87-018-134-080 | | CAP,TCU 0.01-16 N Y UP050 |
| C821 | 87-018-105-080 | | CAP,TC U 12P-50 |
| C822 | 87-018-111-080 | | CAP,TC U 27P-50 J SL UP050 |
| C823 | 87-018-111-080 | | CAP,TC U 27P-50 J SL UP050 |
| C824 | 87-018-109-080 | | CAP,CER 22P-50 J SL UP050 |
| C903 | 87-010-401-080 | | CAP,E 1-50 SME |
| C942 | 87-018-104-080 | | CAP,TC U 10P-50 J SL UP050 |
| CF801 | 87-008-261-010 | | FILTER,SFE10.7MA5-A |
| CON351 | 87-CF5-660-010 | | CONN ASSY,8P RPB |
| D801 | 87-A40-226-080 | | VARI-CAP,SVC251SPA |
| D802 | 87-A40-226-080 | | VARI-CAP,SVC251SPA |
| J201 | 87-A60-024-010 | | JACK 6.3BLK W/S WKM |
| J202 | 87-A60-238-010 | | TERMINAL,SP 4P (MSC) |

| REF. NO. | PART NO. | KANRI NO. | DESCRIPTION |
|---|---|---|---|
| J203 | 87-A60-354-010 | | JACK,PIN 2P MSP,242V-05 |
| L345 | 87-A50-067-080 | | COIL,1 UH CES |
| L451 | 87-007-342-010 | | COIL,OSC 85K BIAS |
| L741 | 87-A50-015-010 | | COIL,FM DET(TOK) |
| L742 | 87-A90-245-010 | | FLTR,CFAZH-450 (TOK) |
| L801 | 87-A50-110-010 | | COIL,FM BPF EX |
| L802 | 87-006-244-010 | | COIL,RF FM 3-1/2T |
| L803 | 87-006-246-010 | | COIL,RF FM 3-1/2T |
| L804 | 87-NFZ-694-080 | | COIL,2.2UHK(CECS) |
| L805 | 87-A50-111-110 | | COIL,FM OSC EX |
| L806 | 86-ZA1-604-010 | | IFT,FM IFT 7-6.2 |
| L807 | 87-NFZ-694-080 | | COIL,2.2UHK(CECS) |
| L901 | 86-NFZ-634-110 | | COIL,AM PACK 4(TOK) |
| ⚠ PR401 | 87-A90-246-080 | | PROTECTOR,0.25A 60<LH> |
| R245 | 87-022-050-080 | | RESISTOR,1W 0.22J |
| R246 | 87-022-050-080 | | RESISTOR,1W 0.22J |
| SFR451 | 87-024-174-080 | | SEMI-FIXED RESISTOR, 33K |
| SFR452 | 87-024-174-080 | | SEMI-FIXED RESISTOR, 33K |
| SFR722 | 87-A90-500-080 | | SFR,10K H NVZ6TLTA |
| W101 | 83-NFZ-705-010 | | F-CABEL,5P-2.5 |
| X703 | 87-A70-044-010 | | VIB,CER CMU2-456A15 |
| X721 | 86-NFZ-651-010 | | VIB,XTAL 4.500MHZ CSA-309 |

FRONT C.B

| REF. NO. | PART NO. | KANRI NO. | DESCRIPTION |
|---|---|---|---|
| | 87-NFZ-637-010 | | FF-CABLE,13P CD |
| C201 | 87-010-404-040 | | CAP,E 4.7-50 SME |
| C202 | 87-010-404-040 | | CAP,E 4.7-50 SME |
| C203 | 87-010-405-040 | | CAP,E 10-50 M SME |
| C204 | 87-010-408-040 | | CAP,E 47-50 M SME |
| C205 | 87-018-208-080 | | CAP,TC U 0.047-50 Z F UP050 |
| C206 | 87-018-208-080 | | CAP,TC U 0.047-50 Z F UP050 |
| C207 | 87-010-401-040 | | CAP,E 1-50 M SME |
| C208 | 87-010-263-040 | | CAP,E 100-10 M SME |
| C210 | 87-018-208-080 | | CAP,TC U 0.047-50 Z F UP050 |
| C211 | 87-010-248-040 | | CAP,E 220-10 M SME |
| C212 | 87-018-208-080 | | CAP,TC U 0.047-50 Z F UP050 |
| C213 | 87-010-401-040 | | CAP,E 1-50 M SME |
| C215 | 87-018-150-080 | | CAP,TC U 18P-50 J CH UP050 |
| C216 | 87-018-147-080 | | CAP,TC U 10P-50 J CH UP050 |
| C217 | 87-018-122-080 | | CAP,180P-50 B |
| C220 | 87-018-127-080 | | CAP,TC U 470P-50 K B UP050 |
| C223 | 87-010-384-040 | | CAP,E 100-25 SME |
| C226 | 87-018-134-080 | | CAP,TC U 0.01-16 N Y UP050 |
| C291 | 87-018-134-080 | | CAP,TC U 0.01-16 N Y UP050 |
| C292 | 87-018-134-080 | | CAP,TC U 0.01-16 N Y UP050 |
| CON103 | 86-NFZ-635-010 | | CONN ASSY,9P MECHA |
| FB201 | 87-003-216-080 | | F-BEAD,BL01RM1 |
| FL301 | 82-NF7-631-010 | | FL 7BT-185GK |
| L201 | 86-NFZ-693-010 | | COIL,CLK 4.19MHZ |
| R250 | 87-029-129-090 | | RES,FUSE 3.3-1/4W J |
| S301 | 87-A90-095-080 | | SW,TACT EVQ11G04M |
| S302 | 87-A90-095-080 | | SW,TACT EVQ11G04M |
| S303 | 87-A90-095-080 | | SW,TACT EVQ11G04M |
| S304 | 87-A90-095-080 | | SW,TACT EVQ11G04M |
| S305 | 87-A90-095-080 | | SW,TACT EVQ11G04M |
| S306 | 87-A90-095-080 | | SW,TACT EVQ11G04M |
| S307 | 87-A90-095-080 | | SW,TACT EVQ11G04M |
| S308 | 87-A90-095-080 | | SW,TACT EVQ11G04M |
| S309 | 87-A90-095-080 | | SW,TACT EVQ11G04M |
| S310 | 87-A90-095-080 | | SW,TACT EVQ11G04M |
| S311 | 87-A90-095-080 | | SW,TACT EVQ11G04M |
| S312 | 87-A90-095-080 | | SW,TACT EVQ11G04M |
| S313 | 87-A90-095-080 | | SW,TACT EVQ11G04M |
| S314 | 87-A90-095-080 | | SW,TACT EVQ11G04M |
| S315 | 87-A90-095-080 | | SW,TACT EVQ11G04M |
| S316 | 87-A90-095-080 | | SW,TACT EVQ11G04M |
| S317 | 87-A90-095-080 | | SW,TACT EVQ11G04M |
| S318 | 87-A90-095-080 | | SW,TACT EVQ11G04M |
| S319 | 87-A90-095-080 | | SW,TACT EVQ11G04M |
| SFR201 | 87-A90-556-080 | | SFR,2.2K H HOKU |
| SW201 | 87-A90-392-010 | | SW,RTRY EC16B24304-20 NON |

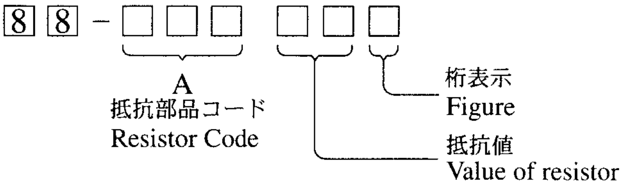
AC1 C.B

| REF. NO. | PART NO. | KANRI NO. | DESCRIPTION |
|---|---|---|---|
| ⚠ CL1 | 87-A90-505-080 | | FUSE CLAMP,TP00351-5 |
| ⚠ CL2 | 87-A90-505-080 | | FUSE CLAMP,TP00351-5 |
| ⚠ F101 | 87-A90-555-010 | | FUSE,800MA 250V T UL<U> |
| ⚠ F101 | 87-035-219-019 | | FUSE,500MA 250V T 21<LH> |
| ⚠ PT101 | 87-NF9-605-010 | | PT,7NF9-LH<LH> |
| ⚠ PT101 | 87-MA8-645-010 | | PT,7MA8 U<U> |
| ⚠ SW101 | 87-A90-234-010 | | SW,SL 1-2-2 SW2201<LH> |
| ⚠ T1 | 87-A60-317-010 | | TERMINAL,1P MSC |
| ⚠ T2 | 87-A60-317-010 | | TERMINAL,1P MSC |

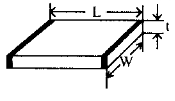
AC2 C.B

○チップ抵抗部品コード／CHIP RESISTOR PART CODE

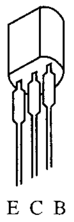
チップ抵抗部品コードの成り立ち
Chip Resistor Part Coding



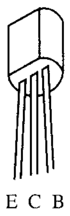
チップ抵抗
Chip resistor

| 容量<br>Wattage | 種類<br>Type | 許容誤差<br>Tolerance | 記号<br>Symbol | 寸法／Dimensions (mm) | | | | 抵抗コード　：A<br>Resistor Code：A |
|---|---|---|---|---|---|---|---|---|
| | | | | 外形／Form | L | W | t | |
| 1/16W | 1608 | ±5% | CJ |  | 1.6 | 0.8 | 0.45 | 108 |
| 1/10W | 2125 | ±5% | CJ | | 2 | 1.25 | 0.45 | 118 |
| 1/8W | 3216 | ±5% | CJ | | 3.2 | 1.6 | 0.55 | 128 |

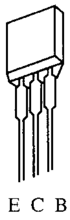
## TRANSISTOR ILLUSTRATION



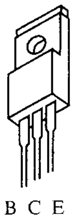
2SC1923
2SC535
KTC3198
KTA1266



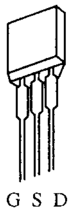
2SD655E
CSD1489B



DTA114YS
DTA144WS
DTC143XS
DTC144ES
DTA143ES

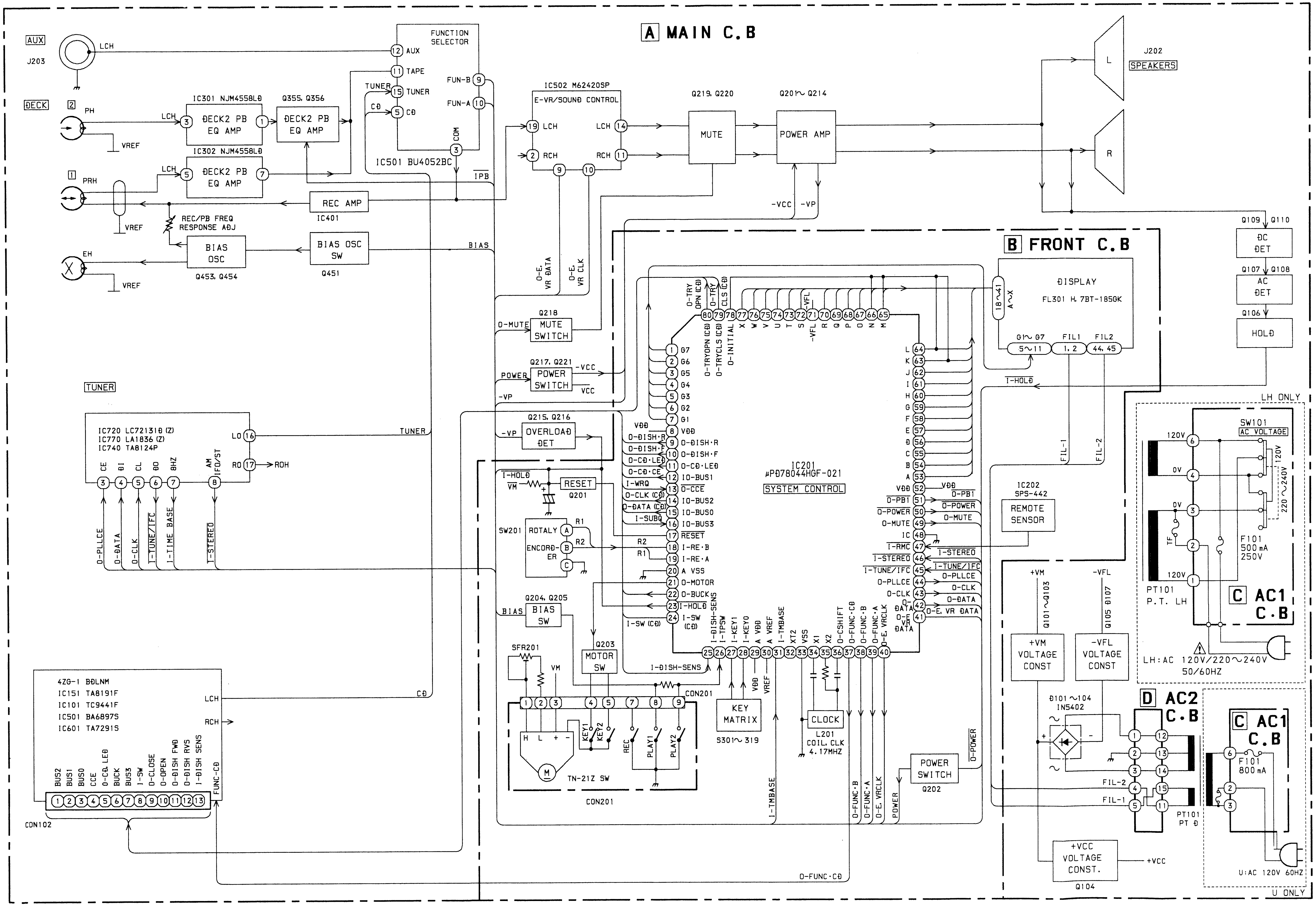


2SB1370
2SD2061

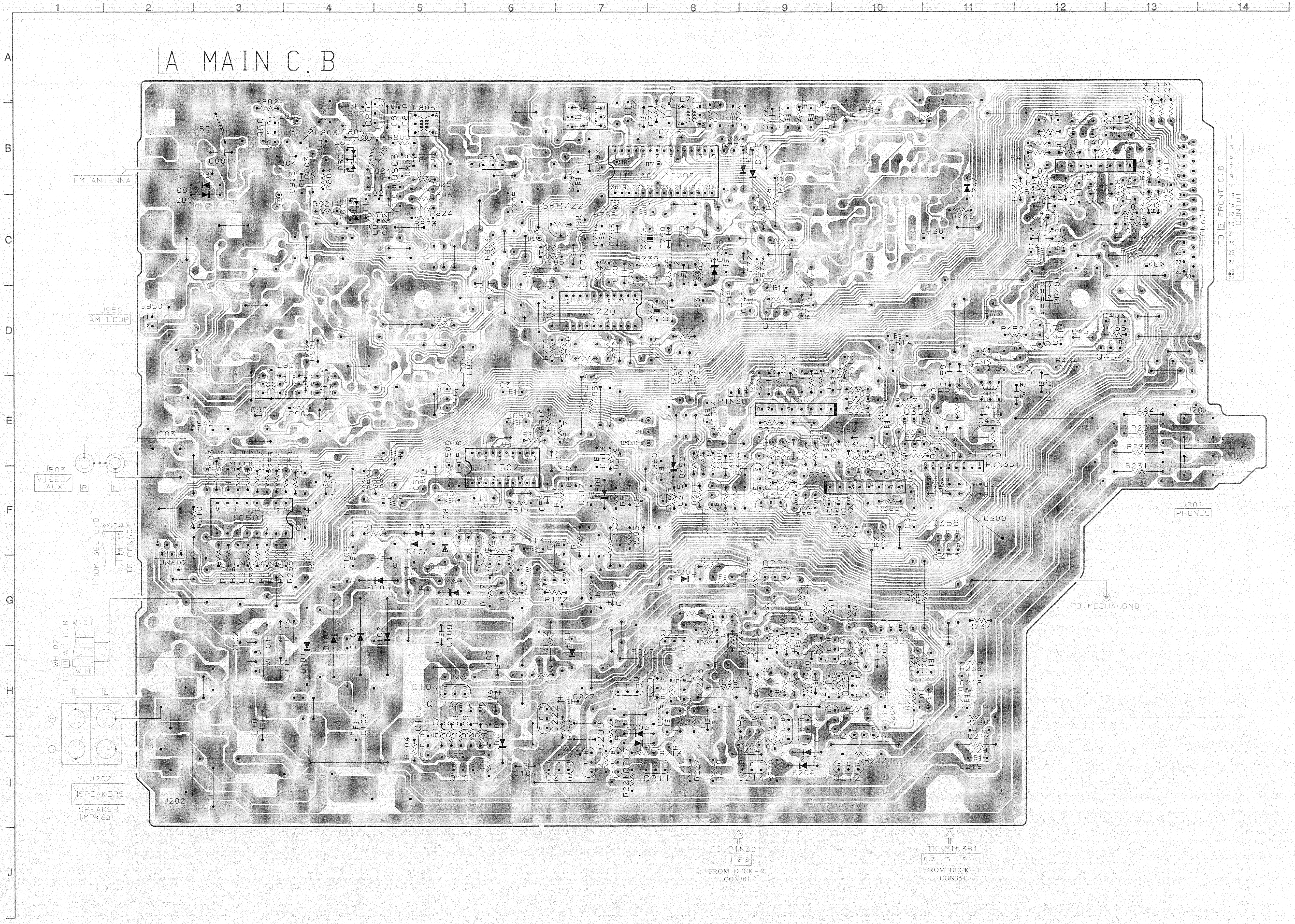


2SK439

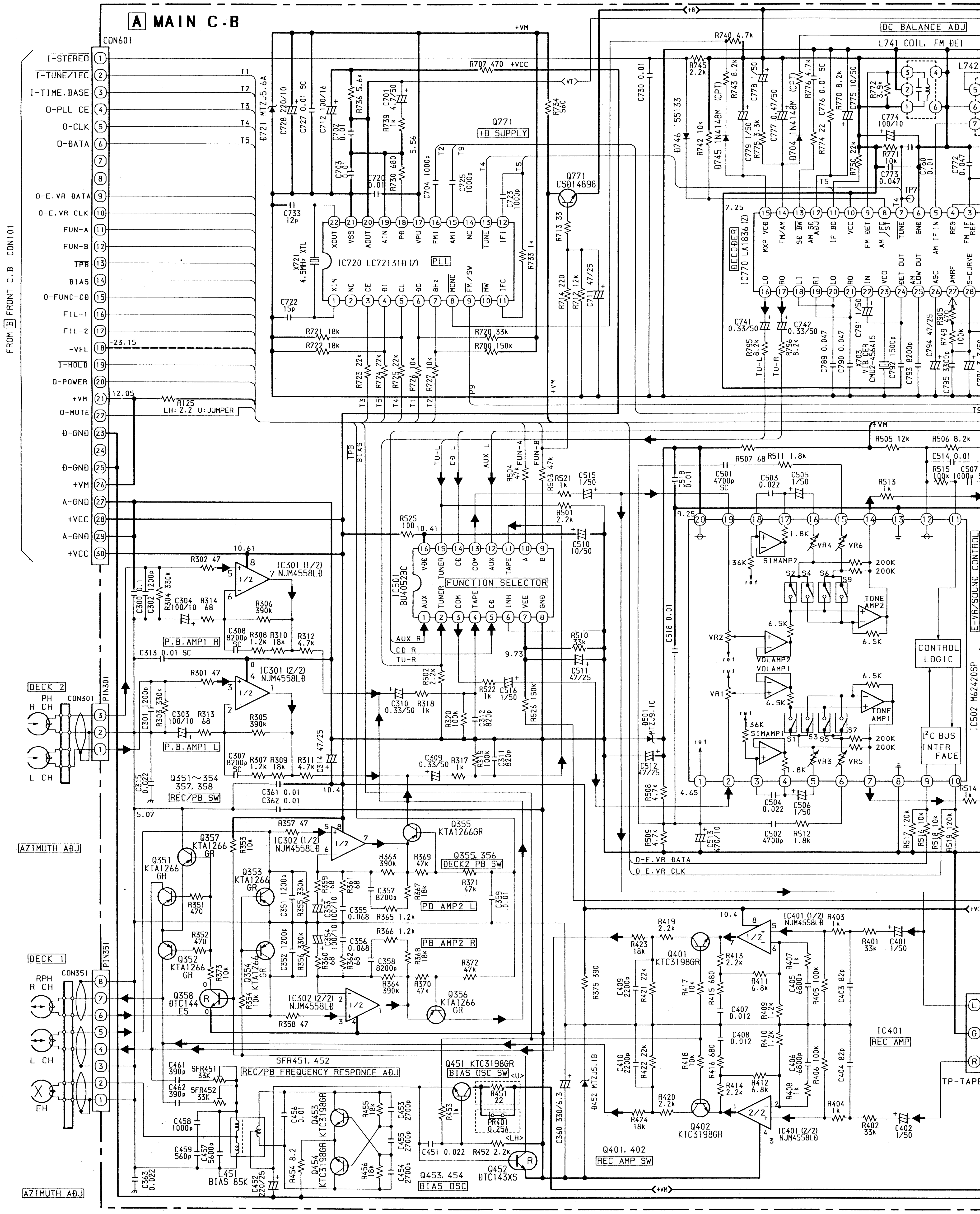
# BLOCK DIAGRAM (MAIN / FRONT)

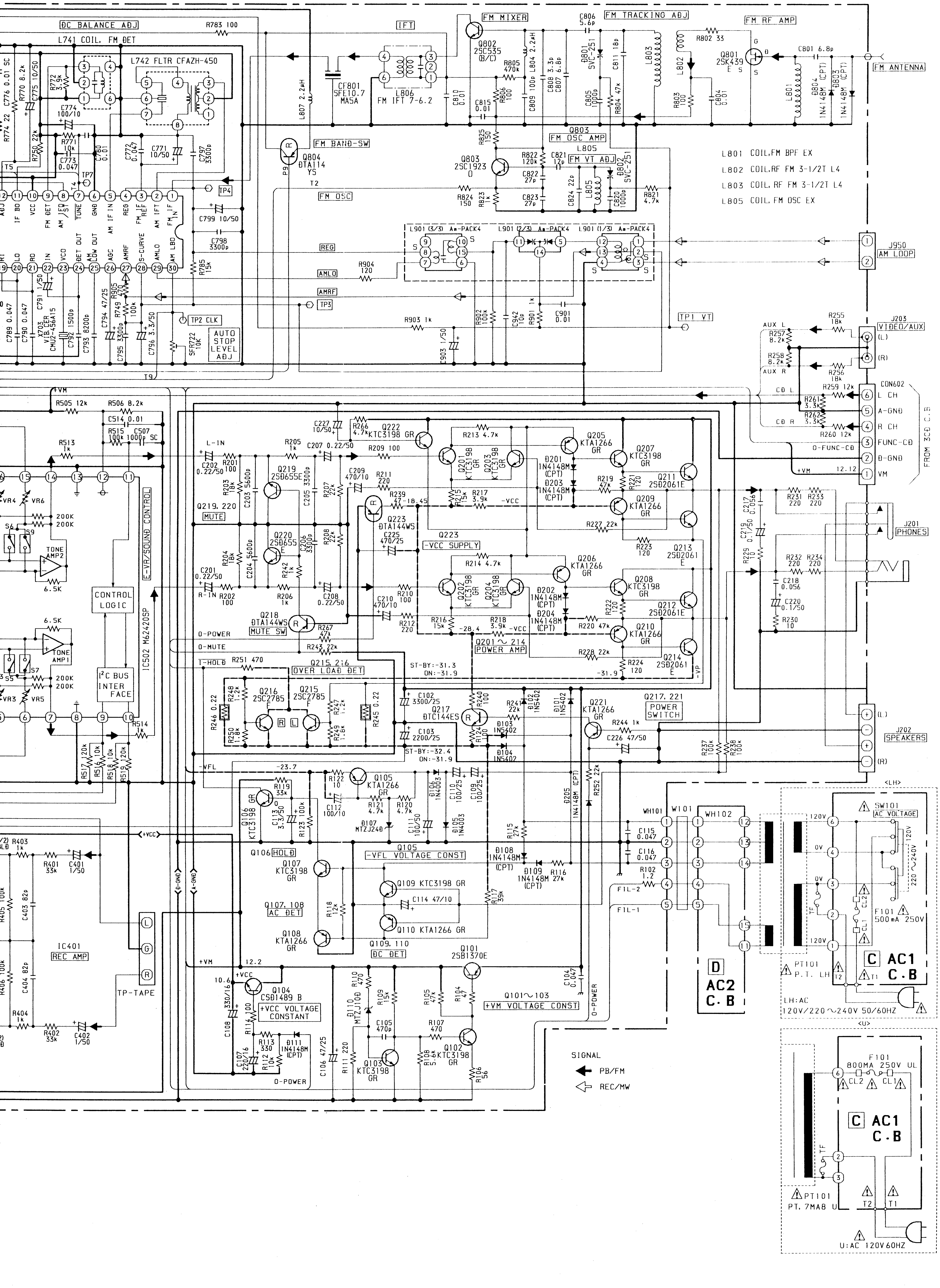

A MAIN C.B
B FRONT C.B
C AC1 C.B
D AC2 C.B
AUX
J203
LCH
DECK
PH
PRH
EH
VREF
IC301 NJM4558LD
DECK2 PB EQ AMP
IC302 NJM4558LD
Q355, Q356
REC AMP
IC401
REC/PB FREQ RESPONSE ADJ
BIAS OSC
Q453, Q454
BIAS OSC SW
Q451
FUNCTION SELECTOR
AUX
TAPE
TUNER
CD
FUN-B
FUN-A
COM
IC501 BU4052BC
IPB
BIAS
IC502 M62420SP
E-VR/SOUND CONTROL
LCH
RCH
O-E. VR DATA
O-E. VR CLK
Q219, Q220
MUTE
Q201~Q214
POWER AMP
-VCC
-VP
J202
SPEAKERS
L
R
Q109, Q110
DC DET
Q107, Q108
AC DET
Q106
HOLD
TUNER
IC720 LC72131D (Z)
IC770 LA1836 (Z)
IC740 TA8124P
CE
DI
CL
DO
8HZ
AM IFO/ST
LO
RO
ROH
O-PLLCE
O-DATA
O-CLK
I-TUNE/IFC
I-TIME BASE
I-STEREO
Q218
O-MUTE
MUTE SWITCH
Q217, Q221
POWER
POWER SWITCH
VCC
-VP
Q215, Q216
OVERLOAD DET
I-HOLD
VM
RESET
Q201
SW201
ROTALY
ENCORDER
R1
R2
Q204, Q205
BIAS SW
Q203
MOTOR SW
SFR201
CON201
KEY1
KEY2
REC
PLAY1
PLAY2
TN-21Z SW
M
4ZG-1 BDLNM
IC151 TA8191F
IC101 TC9441F
IC501 BA6897S
IC601 TA7291S
BUS2
BUS1
BUS0
CCE
O-CD. LED
BUCK
BUS3
I-SW
O-CLOSE
O-OPEN
O-DISH FWD
O-DISH RVS
I-DISH SENS
FUNC-CD
CON102
O-FUNC·CD
IC201
μPD78044HGF-021
SYSTEM CONTROL
G7
G6
G5
G4
G3
G2
G1
VDD
O-DISH·R
O-DISH·F
O-CD·LED
IO-BUS1
O-CCE
IO-BUS2
IO-BUS0
IO-BUS3
RESET
I-RE·B
I-RE·A
VSS
O-MOTOR
O-BUCKS
I-HOLD
I-SW (CD)
O-TRY OPN (CD)
O-TRY CLS (CD)
O-TRYOPN (CD)
O-TRYCLS (CD)
O-INITIAL
VFL
-VFL
O-PB1
O-POWER
O-MUTE
IC
I-RMC
I-STEREO
I-TUNE/IFC
O-PLLCE
O-CLK
O-DATA
O-E. VR DATA
I-DISH-SENS
I-TP5W
I-KEY1
I-KEY0
VREF
I-TMBASE
XT2
X1
X2
O-CSHIFT
O-FUNC·CD
O-FUNC·B
O-FUNC·A
O-E. VRCLK
KEY MATRIX
S301~319
CLOCK
L201
COIL. CLK
4.17MHZ
POWER SWITCH
Q202
DISPLAY
FL301 H. 7BT-185GK
18~41
A~X
G1~G7
5~11
FIL1
1, 2
FIL2
44, 45
FIL-1
FIL-2
IC202
SPS-442
REMOTE SENSOR
+VM
Q101~Q103
+VM VOLTAGE CONST
Q105 D107
-VFL VOLTAGE CONST
D101~104
1N5402
+VCC VOLTAGE CONST.
Q104
LH ONLY
SW101
AC VOLTAGE
120V
0V
220~240V
TF
PT101
P.T. LH
F101
500mA
250V
LH: AC 120V/220~240V
50/60HZ
PT101
PT D
F101
800mA
U: AC 120V 60HZ
U ONLY

# WIRING – 1 (MAIN)


1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
J
A MAIN C.B
FM ANTENNA
J950
AM LOOP
J503
VIDEO/AUX
R
L
FROM 3CD C.B
W604
TO CON602
CON602
W101
WH102
TO AC C.B
WHT
⊕
⊖
J202
SPEAKERS
SPEAKER IMP: 6Ω
TO FRONT C.B
CON101
CON601
J201
PHONES
TO MECHA GND
TO PIN301
1 2 3
FROM DECK - 2
CON301
TO PIN351
8 7 5 3 1
FROM DECK - 1
CON351
IC770
IC720
IC502
IC501
PIN301
PIN351

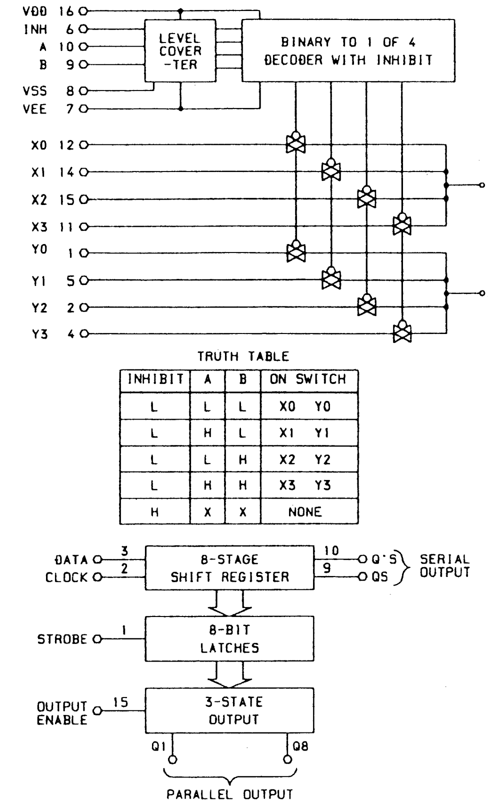
# SCHEMATIC DIAGRAM – 1 (MAIN)


A MAIN C.B
CON601
I-STEREO
I-TUNE/IFC
I-TIME.BASE
O-PLL CE
O-CLK
O-DATA
O-E.VR DATA
O-E.VR CLK
FUN-A
FUN-B
TPB
BIAS
O-FUNC-CD
FIL-1
FIL-2
-VFL
I-HOLD
O-POWER
+VM
O-MUTE
D-GND
D-GND
+VM
A-GND
+VCC
A-GND
+VCC
FROM B FRONT C.B CON101
R125 LH: 2.2 U: JUMPER
IC720 LC72131D (Z) PLL
X721 XTL 4.5MHz
Q771 +B SUPPLY
Q771 CSD1489B
DC BALANCE ADJ
L741 COIL, FM DET
DECODER IC770 LA1836 (Z)
IC501 BU4052BC
FUNCTION SELECTOR
IC301 (1/2) NJM4558LD
IC301 (2/2) NJM4558LD
P.B.AMP1 R
P.B.AMP1 L
DECK 2
CON301
PIN301
PH R CH
L CH
Q351~354 357, 358 REC/PB SW
AZIMUTH ADJ
IC302 (1/2) NJM4558LD
IC302 (2/2) NJM4558LD
Q355 KTA1266GR
Q355, 356 DECK2 PB SW
PB AMP2 L
PB AMP2 R
Q356 KTA1266 GR
Q357 KTA1266 GR
Q351 KTA1266 GR
Q353 KTA1266 GR
Q352 KTA1266 GR
Q354 KTA1266
Q358 DTC144 ES
DECK 1
CON351
PIN351
RPH R CH
L CH
EH
SFR451, 452
REC/PB FREQUENCY RESPONCE ADJ
L451 BIAS 85K
Q451 KTC3198GR BIAS OSC SW
PR401 0.25A
Q453 KTC3198GR
Q454 KTC3198GR
Q453, 454 BIAS OSC
Q452 DTC143XS
D452 MTZJ5.1B
D721 MTZJ5.6A
D591 MTZJ9.1C
IC401 (1/2) NJM4558LD
IC401 (2/2) NJM4558LD
Q401 KTC3198GR
Q402 KTC3198GR
Q401, 402 REC AMP SW
IC401 REC AMP
TP-TAPE
IC502 M62420SP
E-VR/SOUND CONTROL
CONTROL LOGIC
I²C BUS INTER FACE
TONE AMP2
TONE AMP1
VOLAMP2
VOLAMP1
SIMAMP2
SIMAMP1
O-E.VR DATA
O-E.VR CLK
(+B)
(+VM)
(VT)


DC BALANCE ADJ
L741 COIL, FM DET
L742 FLTR CFAZH-450
R783 100
IFT
FM MIXER
Q802 2SC535 (B/C)
C806 5.6p
FM TRACKING ADJ
FM RF AMP
R802 33
Q801 2SK439
C801 6.8p
FM ANTENNA
CF801 SFE10.7 MA5A
L806 FM IFT 7-6.2
L807 2.2μH
D801 SVC-251
D802 SVC-251
D803 1N4148M (CPT)
D804 1N4148M (CPT)
FM BAND-SW
Q804 DTA114 YS
Q803 FM OSC AMP
Q803 2SC1923 O
L805
FM VT ADJ
FM OSC
L801 COIL,FM BPF EX
L802 COIL,RF FM 3-1/2T L4
L803 COIL,RF FM 3-1/2T L4
L805 COIL,FM OSC EX
TP4
TP7
T2
T4
T5
L901 (3/3) AM-PACK4
L901 (2/3) AM-PACK4
L901 (1/3) AM-PACK4
REG
AMLO
AMRF
TP3
TP2 CLK
AUTO STOP LEVEL ADJ
SFR722 10K
X703 VIB.CER CMU2-456A15
TP1 VT
J950 AM LOOP
J203 VIDEO/AUX
AUX L
AUX R
CON602
L CH
A-GND
R CH
FUNC-CD
D-GND
VM
CD L
CD R
D-FUNC-CD
FROM 3CD C.B
+VM
R505 12k
R506 8.2k
C514 0.01
C507 1000p SC
R515 100k
R513 1k
L-IN
R-IN
Q219, 220 MUTE
Q219 2SD655E
Q220 2SD655 E
Q222 KTC3198 GR
Q223 DTA144WS
Q223 -VCC SUPPLY
Q201 KTC3198 GR
Q203 KTC3198 GR
Q202 KTC3198 GR
Q204 KTC3198 GR
Q205 KTA1266 GR
Q206 KTA1266 GR
Q207 KTC3198 GR
Q208 KTC3198 GR
Q209 KTA1266 GR
Q210 KTA1266 GR
Q211 2SD2061E
Q212 2SD2061E
Q213 2SD2061 E
Q214 2SD2061 E
D201 1N4148M (CPT)
D202 1N4148M (CPT)
D203 1N4148M (CPT)
D204 1N4148M (CPT)
Q218 DTA144WS MUTE SW
Q201 ~ 214 POWER AMP
ST-BY: -31.3 ON: -31.9
-31.9
-28.4
-18.45
-VCC
-VP
D-POWER
D-MUTE
I-HOLD
Q215, 216 OVER LOAD DET
Q216 2SC2785
Q215 2SC2785
R246 0.22
R245 0.22
J201 PHONES
J202 SPEAKERS
E-VR/SOUND CONTROL
IC502 M62420SP
CONTROL LOGIC
I²C BUS INTER FACE
TONE AMP2
TONE AMP1
VR3 VR4 VR5 VR6
200K
6.5K
S5 S6 S7 S9
R514
R517 120k
R518 10k
R519 120k
R516 10k
Q217 DTC144ES
C102 3300/25
C103 2200/25
ST-BY: -32.4 ON: -31.9
D101 1N5402
D102 1N5402
D103 1N5402
D104 1N5402
Q221 KTA1266 GR
Q217, 221 POWER SWITCH
C226 47/50
-VFL
-23.7
Q105 KTA1266 GR
Q106 KTC3198 GR
Q106 HOLD
D106 1N4003
D105 1N4003
D107 MTZJ24D
Q105 -VFL VOLTAGE CONST
D108 1N4148M (CPT)
D109 1N4148M (CPT)
D205 1N4148M (CPT)
Q107 KTC3198 GR
Q108 KTA1266 GR
Q107, 108 AC DET
Q109 KTC3198 GR
Q110 KTA1266 GR
Q109, 110 DC DET
C114 47/10
Q101 2SB1370E
Q101~103 +VM VOLTAGE CONST
Q102 KTC3198 GR
Q103 KTC3198 GR
D110 MTZJ10D
Q104 CSD1489 B
+VCC VOLTAGE CONSTANT
D111 1N4148M (CPT)
+VCC
+VM
12.2
10.6
12.12
D-POWER
D-GND
A-GND
IC401 REC AMP
TP-TAPE
WH101
W101
WH102
F1L-1
F1L-2
D AC2 C.B
C AC1 C.B
SW101 AC VOLTAGE
120V
0V
220~240V
F101 500mA 250V
PT101 P.T. LH
T1 T2
TF
CL1 CL2
LH:AC 120V/220~240V 50/60HZ
<LH>
<U>
F101 800MA 250V UL
PT101 PT. 7MA8 U
U:AC 120V60HZ
SIGNAL
PB/FM
REC/MW

# IC BLOCK DIAGRAM

## IC, BU4052BCF

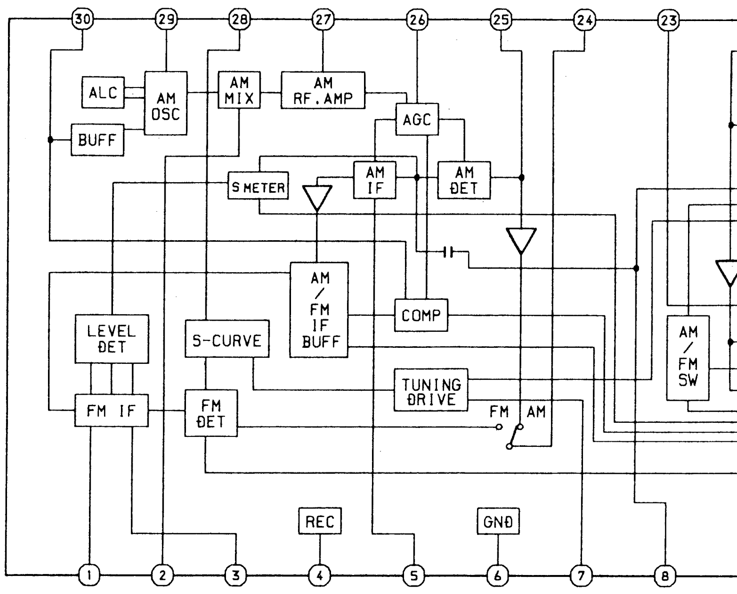


VDD 16
INH 6
A 10
B 9
VSS 8
VEE 7
LEVEL COVER -TER
BINARY TO 1 OF 4 DECODER WITH INHIBIT
X0 12
X1 14
X2 15
X3 11
Y0 1
Y1 5
Y2 2
Y3 4
13
3
TRUTH TABLE
DATA 3
CLOCK 2
8-STAGE SHIFT REGISTER
10 Q'S
9 QS
SERIAL OUTPUT
STROBE 1
8-BIT LATCHES
OUTPUT ENABLE 15
3-STATE OUTPUT
Q1
Q8
PARALLEL OUTPUT

TRUTH TABLE

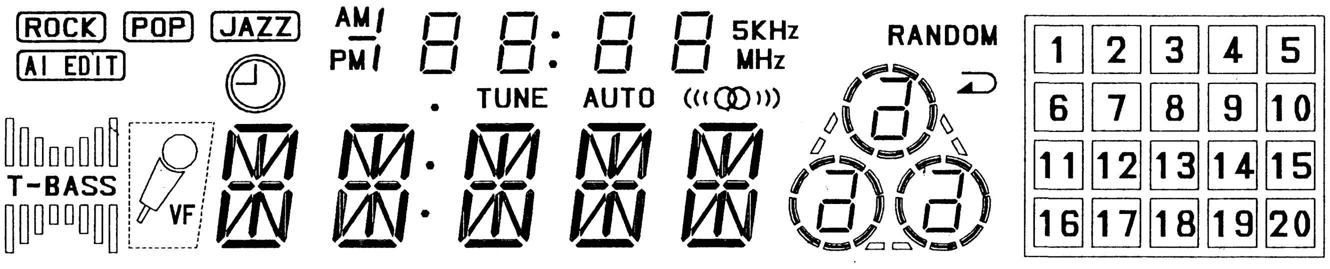
| INHIBIT | A | B | ON SWITCH |
|---|---|---|---|
| L | L | L | X0 Y0 |
| L | H | L | X1 Y1 |
| L | L | H | X2 Y2 |
| L | H | H | X3 Y3 |
| H | X | X | NONE |

## IC, LA1836



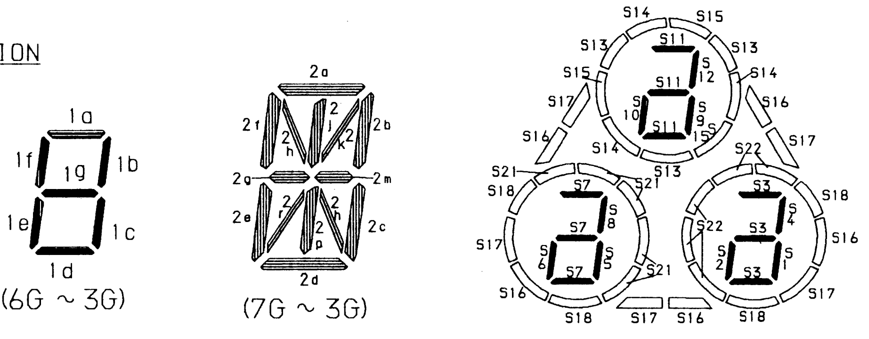
30
29
28
27
26
25
24
23
ALC
AM OSC
BUFF
AM MIX
AM RF.AMP
AGC
S METER
AM IF
AM DET
LEVEL DET
S-CURVE
AM / FM IF BUFF
COMP
AM / FM SW
TUNING DRIVE
FM IF
FM DET
FM
AM
REC
GND
1
2
3
4
5
6
7
8

# FL GRID ASSIGNMENT & ANODE CONNECTION



ROCK
POP
JAZZ
AI EDIT
AM
PM
5KHz
MHz
TUNE
AUTO
T-BASS
VF
RANDOM
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

SEGMENT DESIGNATION



1a
1f
1g
1b
1e
1c
1d
2a
2f
2h
2j
2k
2b
2g
2m
2e
2r
2p
2n
2c
2d
S14
S15
S13
S11
S12
S14
S16
S17
S21
S22
S18
S7
S8
S3
S1
S2
S6
S5
S9
S10
S4
S16
S17
S18
S17
S16
S18

(6G ~ 3G)

(7G ~ 3G)

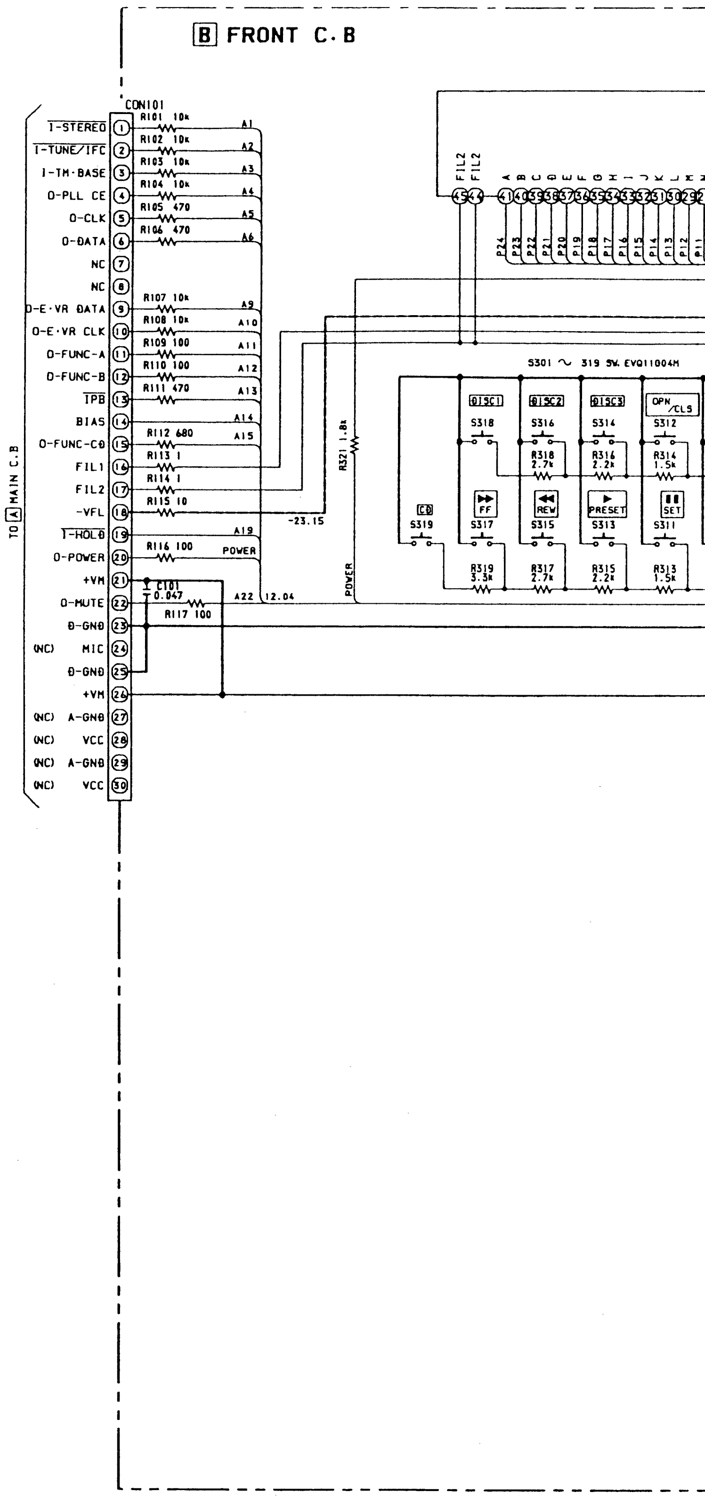
(2G)

ANODE CONNECTION

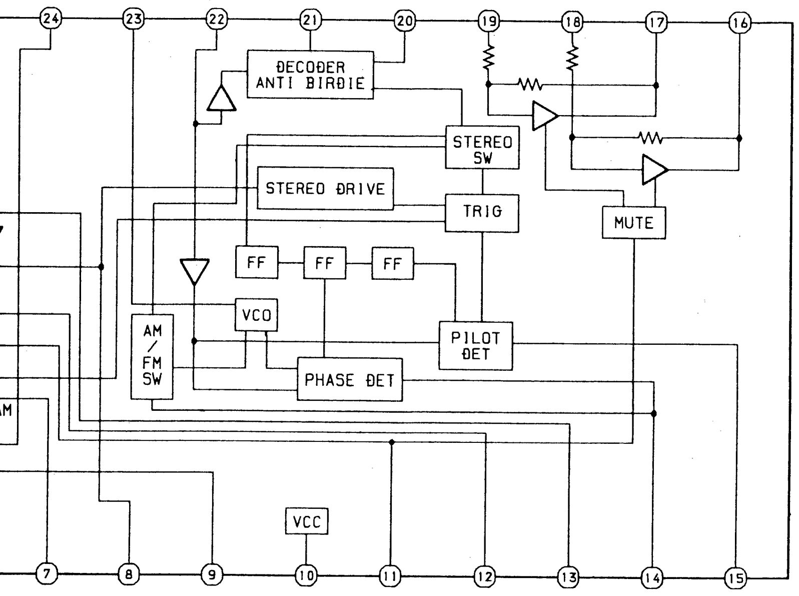
| | 7G | 6G | 5G | 4G | 3G | 2G | 1G |
|---|---|---|---|---|---|---|---|
| P1 | 2d | 2d | 2d | 2d | 2d | S1 | **20** |
| P2 | 2j, 2p | 2j, 2p | 2j, 2p | 2j, 2p | 2j, 2p | S2 | **19** |
| P3 | 2n | 2n | 2n | 2n | 2n | S3 | **18** |
| P4 | 2r | 2r | 2r | 2r | 2r | S4 | **17** |
| P5 | 2c | 2c | 2c | 2c | 2c | S5 | **16** |
| P6 | 2e | 2e | 2e | 2e | 2e | S6 | **15** |
| P7 | 2m | 2m | 2m | 2m | 2m | S7 | **14** |
| P8 | 2g | 2g | 2g | 2g | 2g | S8 | **13** |
| P9 | 2f | 2f | 2f | 2f | 2f | S9 | **12** |
| P10 | 2b | 2b | 2b | 2b | 2b | S10 | **11** |
| P11 | 2k | 2k | 2k | 2k | 2k | S11 | **10** |
| P12 | 2h | 2h | 2h | 2h | 2h | S12 | **9** |
| P13 | 2a | 2a | 2a | 2a | 2a | S13 | **8** |
| P14 | VF | : | **TUNE** | **AUTO** | (((◎))) | S14 | **7** |
| P15 | ▥ | ○ | ○ (下) | — | **MHz** | S15 | **6** |
| P16 | **AI EDIT** | — | ○ (上) | — | **KHz** | S16 | **5** |
| P17 | ◷ | — | — | — | **5** | S17 | **4** |
| P18 | **PM** | 1d | 1d | 1d | 1d | S18 | **3** |
| P19 | — | 1e | 1e | 1e | 1e | — | **2** |
| P20 | / | 1c | 1c | 1c | 1c | — | **1** |
| P21 | **AM** | 1g | 1g | 1g | 1g | S21 | — |
| P22 | (JAZZ) | 1f | 1f | 1f | 1f | S22 | — |
| P23 | (POP) | 1b | 1b | 1b | 1b | ↩ | — |
| P24 | (ROCK) | 1a | 1a | 1a | 1a | **RANDOM** | — |
| P25 | — | — | — | — | — | — | ▦ |

7-BT-185GK
ANODE CONNECTION

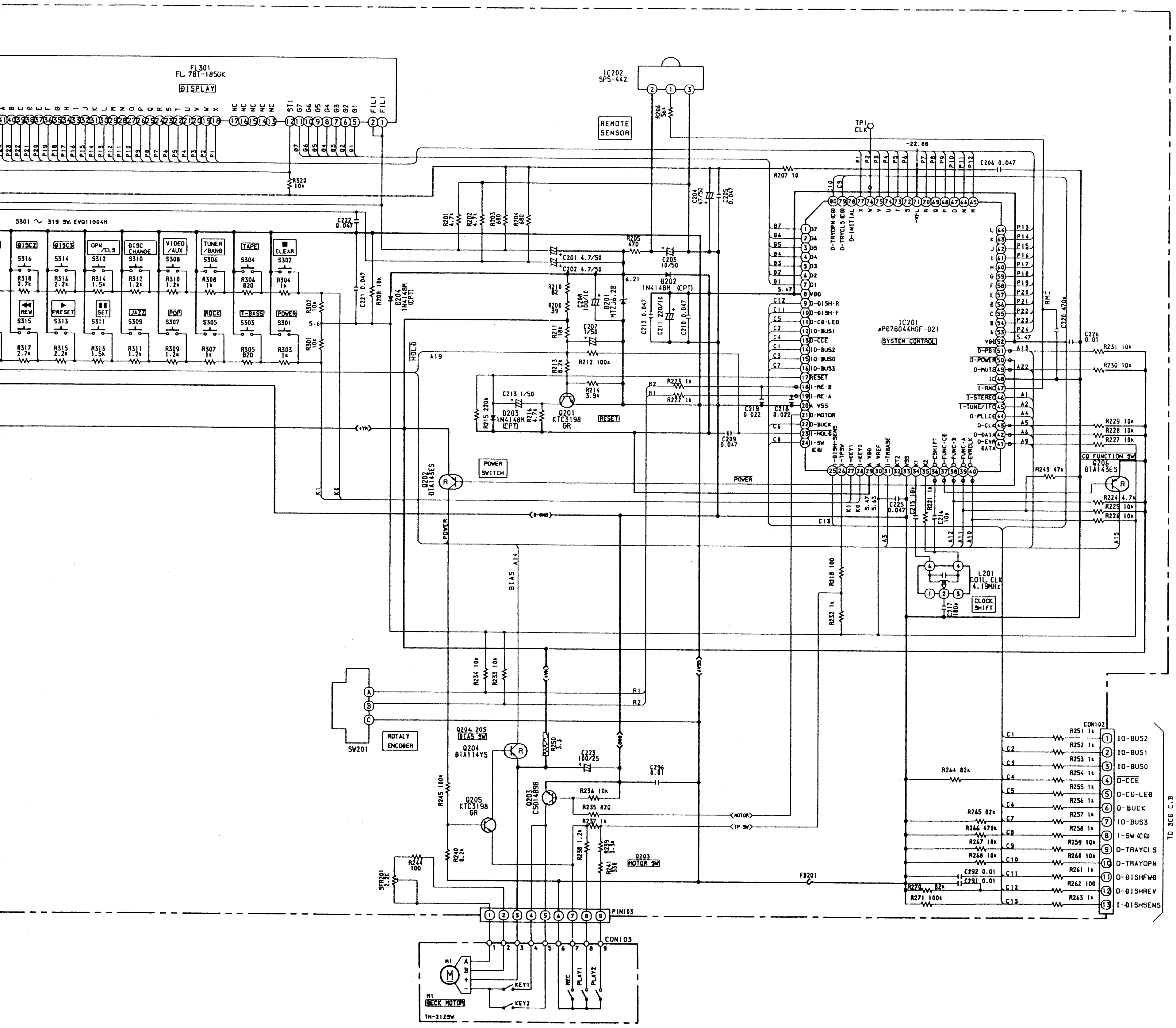
# SCHEMATIC DIAGRAM – 2 (FRONT)



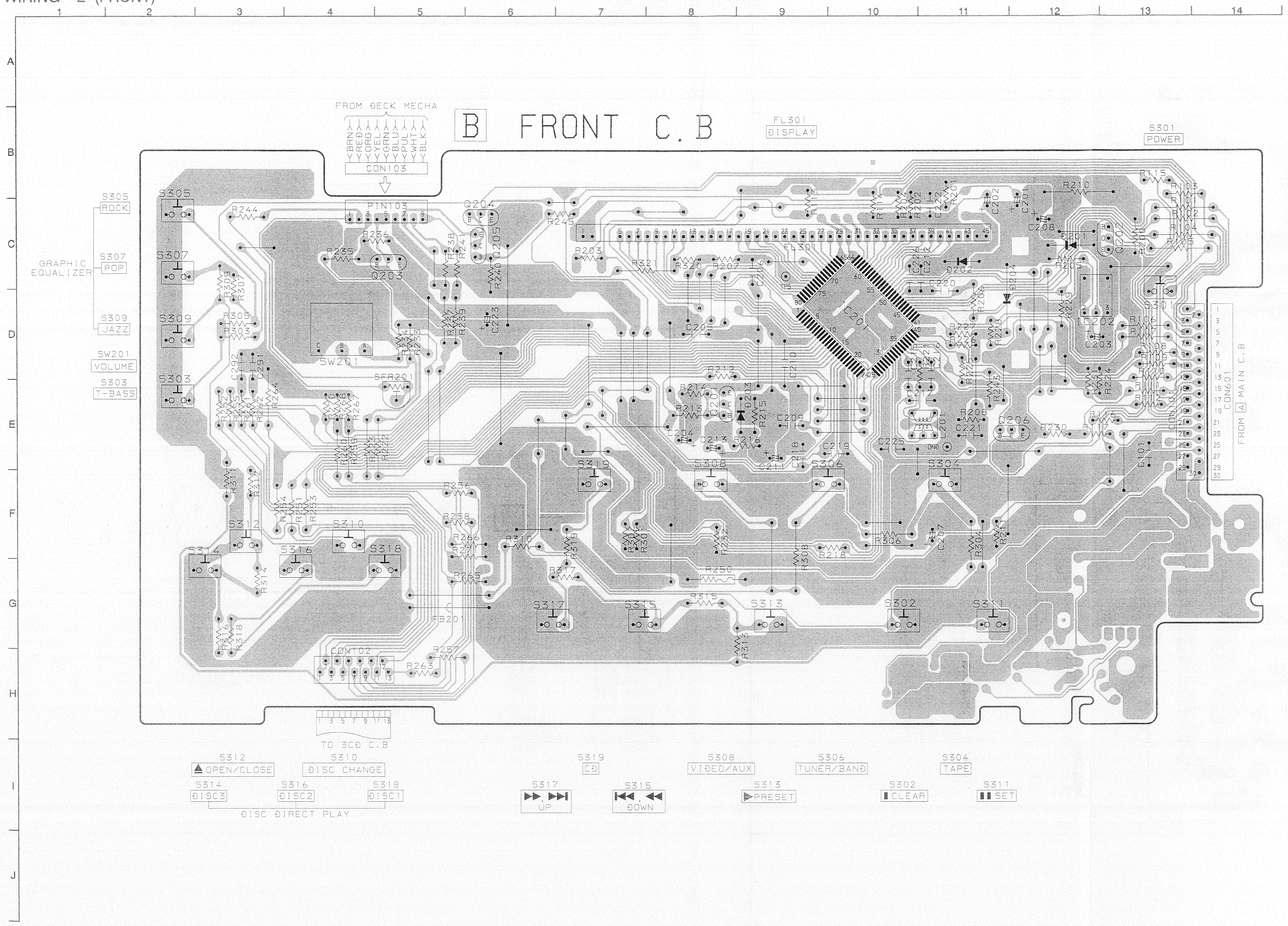
B FRONT C.B
CON101
TO A MAIN C.B
I-STEREO 1
I-TUNE/IFC 2
I-TM·BASE 3
O-PLL CE 4
O-CLK 5
O-DATA 6
NC 7
NC 8
O-E·VR DATA 9
O-E·VR CLK 10
O-FUNC-A 11
O-FUNC-B 12
IPB 13
BIAS 14
O-FUNC-C0 15
FIL1 16
FIL2 17
-VFL 18
I-HOLD 19
O-POWER 20
+VM 21
O-MUTE 22
D-GND 23
(NC) MIC 24
D-GND 25
+VM 26
(NC) A-GND 27
(NC) VCC 28
(NC) A-GND 29
(NC) VCC 30
R101 10k
R102 10k
R103 10k
R104 10k
R105 470
R106 470
R107 10k
R108 10k
R109 100
R110 100
R111 470
R112 680
R113 1
R114 1
R115 10
R116 100
R117 100
C101 0.047
A1
A2
A3
A4
A5
A6
A9
A10
A11
A12
A13
A14
A15
A19
A22
POWER
-23.15
12.04
R321 1.8k
FIL2
FIL2
P24
P23
P22
P21
P20
P19
P18
P17
P16
P15
P14
P13
P12
P11
S301 ~ 319 SW. EVQ11004M
DISC1
DISC2
DISC3
OPN/CLS
S318
S316
S314
S312
R318 2.7k
R316 2.2k
R314 1.5k
CD
S319
FF
S317
REW
S315
PRESET
S313
SET
S311
R319 3.3k
R317 2.7k
R315 2.2k
R313 1.5k


DECODER ANTI BIRDIE
STEREO SW
STEREO DRIVE
TRIG
MUTE
FF
VCO
AM / FM SW
PILOT DET
PHASE DET
VCC

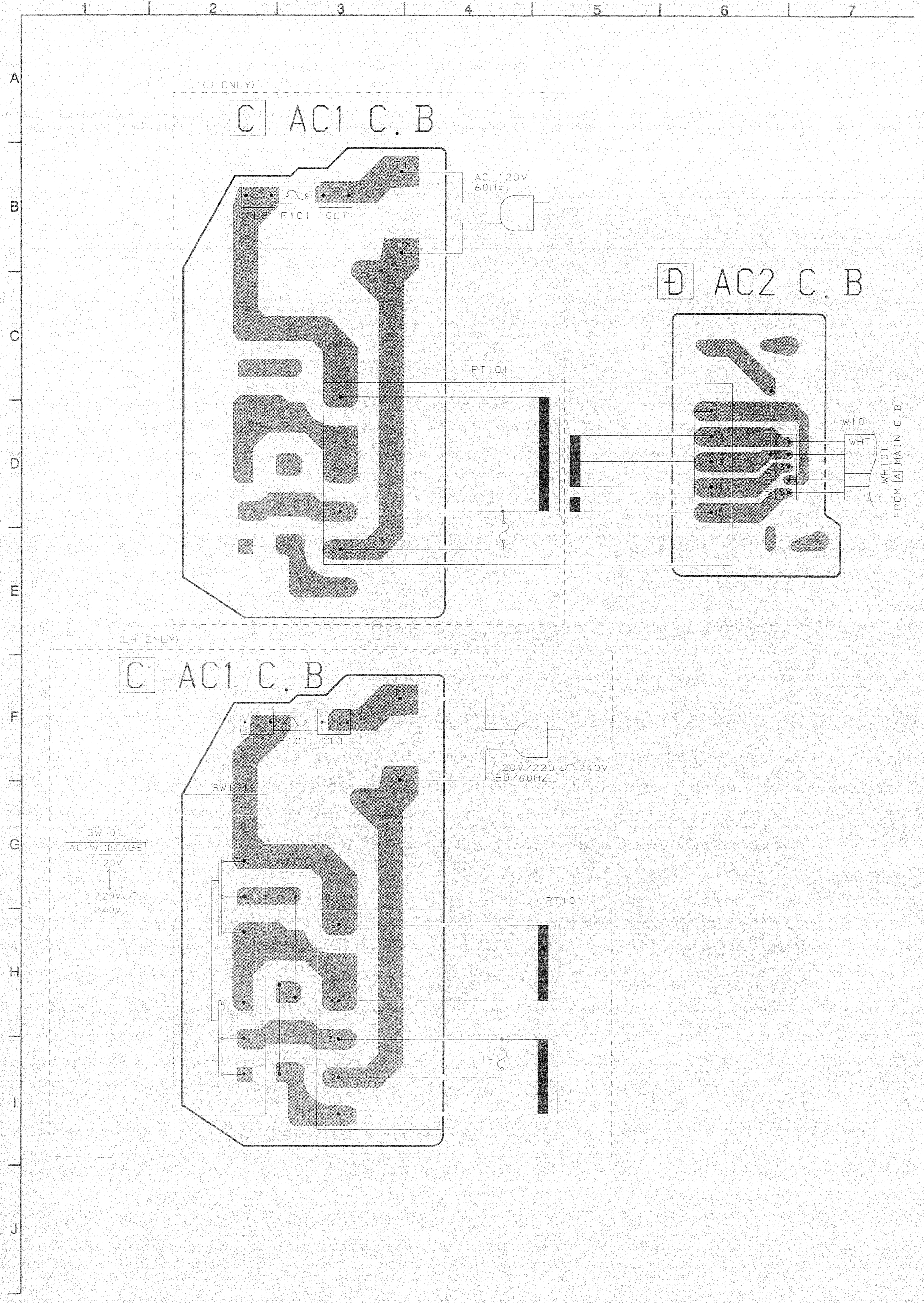
T)


FL301
FL 78T-185GK
DISPLAY
IC202
SPS-442
REMOTE SENSOR
TP1 CLK
S301 ~ 319 SW. EVQ11004M
DISC2
DISC3
OPN/CLS
DISC CHANGE
VIDEO/AUX
TUNER/BAND
TAPE
CLEAR
REW
PRESET
SET
JAZZ
POP
ROCK
T-BASS
POWER
IC201
µPD78044HGF-021
SYSTEM CONTROL
Q201
KTC3198
GR
RESET
Q202
DTA143ES
POWER SWITCH
Q203
1N4148M (CPT)
D202
1N4148M (CPT)
D204
1N4148M (CPT)
D201
MTZJ6.2B
L201
COIL CLK
4.19MHz
CLOCK SHIFT
Q206
DTA143ES
CD FUNCTION SW
SW201
ROTALY ENCODER
Q204, 205
BIAS SW
Q204
DTA114YS
Q205
KTC3198
GR
Q203
C5014598
Q203
MOTOR SW
PIN103
CON103
M1
DECK MOTOR
KEY1
KEY2
REC
PLAY1
PLAY2
TN-21Z9W
CON102
I0-BUS2
I0-BUS1
I0-BUS0
O-CCE
O-CD-LED
O-BUCK
I0-BUS3
I-SW (CD)
O-TRAYCLS
O-TRAYOPN
O-DISHFWD
O-DISHREV
I-DISHSENS
TO 3CD C.B
FB201

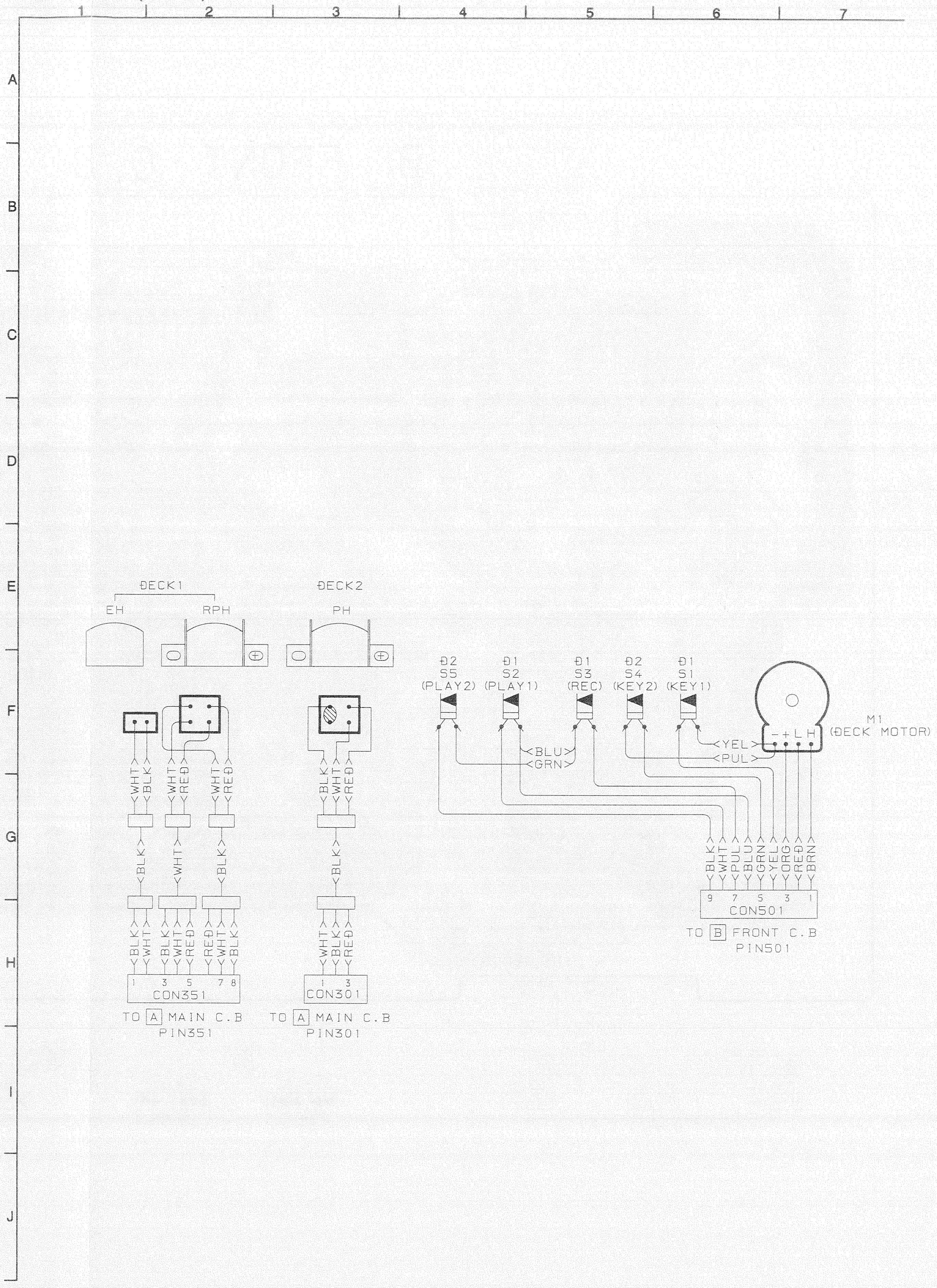
## WIRING – 2 (FRONT)


B FRONT C.B
FROM DECK MECHA
BRN RED ORG YEL GRN BLU PUL WHT BLK
CON103
PIN103
FL301
DISPLAY
S301
POWER
GRAPHIC EQUALIZER
S305
ROCK
S307
POP
S309
JAZZ
SW201
VOLUME
S303
T-BASS
IC201
IC202
Q201
Q202
Q203
Q204
Q205
Q206
D201
D202
D203
D204
SFR201
FB201
CON102
CON601
FROM A MAIN C.B
TO 3CD C.B
S312
OPEN/CLOSE
S310
DISC CHANGE
S314
DISC3
S316
DISC2
S318
DISC1
DISC DIRECT PLAY
S319
CD
S317
UP
S315
DOWN
S308
VIDEO/AUX
S313
PRESET
S306
TUNER/BAND
S302
CLEAR
S304
TAPE
S311
SET
1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H I J

## WIRING – 3 (AC)


1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
I
J
(U ONLY)
C AC1 C.B
T1
T2
CL2
F101
CL1
AC 120V
60Hz
PT101
6
3
2
D AC2 C.B
11
12
13
14
15
1
3
5
WH102
W101
WHT
WH101
FROM A MAIN C.B
(LH ONLY)
C AC1 C.B
T1
T2
CL2
F101
CL1
120V/220 ∽ 240V
50/60HZ
SW101
SW101
AC VOLTAGE
120V
220V∽
240V
PT101
6
4
3
2
1
TF

## WIRING – 4 (DECK)


1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
I
J
DECK1
EH
RPH
DECK2
PH
<WHT>
<BLK>
<WHT>
<RED>
<WHT>
<RED>
<BLK>
<WHT>
<BLK>
<BLK>
<WHT>
<RED>
<BLK>
<WHT>
<BLK>
<WHT>
<RED>
<RED>
<WHT>
<BLK>
<WHT>
<BLK>
<RED>
1 3 5 7 8
CON351
TO A MAIN C.B
PIN351
1 3
CON301
TO A MAIN C.B
PIN301
D2 S5 (PLAY2)
D1 S2 (PLAY1)
D1 S3 (REC)
D2 S4 (KEY2)
D1 S1 (KEY1)
<BLU>
<GRN>
<YEL>
<PUL>
– + L H
M1
(DECK MOTOR)
<BLK>
<WHT>
<PUL>
<BLU>
<GRN>
<YEL>
<ORG>
<RED>
<BRN>
9 7 5 3 1
CON501
TO B FRONT C.B
PIN501

# IC DESCRIPTION

IC, µPD78044HGF-201-3B9

<table>
<tr><th>Pin No.</th><th>Pin Name</th><th>I/O</th><th>Description</th></tr>
<tr><td>1~7</td><td>G7~G1</td><td>O</td><td>FL grid output.</td></tr>
<tr><td>8</td><td>VDD</td><td>-</td><td>Power supply input.</td></tr>
<tr><td>9</td><td>O-DISH·R</td><td>O</td><td>CD turntable reverse rotation output.</td></tr>
<tr><td>10</td><td>O-DISH·F</td><td>O</td><td>CD turntable forword rotation output.</td></tr>
<tr><td>11</td><td>O-CD·LED</td><td>O</td><td>CD flash window LED ON/$\overline{\text{OFF}}$ output.</td></tr>
<tr><td>12</td><td>IO-BUS1</td><td>I/O</td><td>µprocessor interface,data input/output.</td></tr>
<tr><td>13</td><td>$\overline{\text{O-CCE}}$</td><td>O</td><td>µprocessor interface,chip enable signal. When "L" : BUS 3~0 are active.</td></tr>
<tr><td>14</td><td>IO-BUS2</td><td>I/O</td><td>µprocessor interface,data input/output.</td></tr>
<tr><td>15</td><td>IO-BUS0</td><td>I/O</td><td>µprocessor interface,data input/output.</td></tr>
<tr><td>16</td><td>IO-BUS3</td><td>I/O</td><td>µprocessor interface,data input/output.</td></tr>
<tr><td>17</td><td>$\overline{\text{RESET}}$</td><td>I</td><td>Reset input.</td></tr>
<tr><td>18</td><td>I-RE·B</td><td>I</td><td>Rotary encoder B input.</td></tr>
<tr><td>19</td><td>I-RE·A</td><td>I</td><td>Rotary encoder A input.</td></tr>
<tr><td>20</td><td>A VSS</td><td>-</td><td>GND.</td></tr>
<tr><td>21</td><td>O-MOTOR</td><td>O</td><td>Deck motor output.</td></tr>
<tr><td>22</td><td>O-BUCK</td><td>O</td><td>µprocessor interface,clock output.</td></tr>
<tr><td>23</td><td>$\overline{\text{I-HOLD}}$</td><td>I</td><td>Power failure detected input "L" to stop clock and maintain memory.</td></tr>
<tr><td>24</td><td>I-SW(CD)</td><td>I</td><td>CD mechanical switch A/D converter input.</td></tr>
<tr><td>25</td><td>I-DISH-SENS</td><td>I</td><td>CD turntable photo sensor A/D converter input.</td></tr>
<tr><td>26</td><td>I-TPSW</td><td>I</td><td>Deck mechanical switch A/D converter input.</td></tr>
<tr><td>27,28</td><td>I-KEY1,0</td><td>I</td><td>Key input. (A/D)</td></tr>
<tr><td>29</td><td>A VDD</td><td>-</td><td>Power supply input.</td></tr>
<tr><td>30</td><td>A VREF</td><td>-</td><td>Reference voltage. (+5V)</td></tr>
<tr><td>31</td><td>I-TMBASE</td><td>I</td><td>Reference clock input for timer watch.</td></tr>
<tr><td>32</td><td>XT2(NC)</td><td>-</td><td>Not used.</td></tr>
<tr><td>33</td><td>VSS</td><td>-</td><td>GND.</td></tr>
<tr><td>34,35</td><td>X1,X2</td><td>I/O</td><td>4.19MHz oscillator circuit.</td></tr>
<tr><td>36</td><td>O-CSHIFT</td><td>O</td><td>Micon clock shift output. (active high)</td></tr>
<tr><td>37</td><td>O-FUNC·CD</td><td>O</td><td>Power supply for CD. Output $\overline{\text{ON}}$/OFF.</td></tr>
<tr><td>38</td><td>O-FUNC·B</td><td rowspan="2">O</td><td rowspan="2">Function switch output.
<table>
<tr><th></th><th>AUX</th><th>TUNER</th><th>CD</th><th>TAPE</th></tr>
<tr><td>O-FUNCA</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>O-FUNCB</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table></td></tr>
<tr><td>39</td><td>O-FUNC·A</td></tr>
<tr><td>40</td><td>O-EVRCLK</td><td>O</td><td>Electrical volume clock output.</td></tr>
<tr><td>41</td><td>O-EVRDATA</td><td>O</td><td>Electrical volume data output.</td></tr>
<tr><td>42</td><td>O-DATA</td><td>O</td><td>PLL IC data output.</td></tr>
<tr><td>43</td><td>O-CLK</td><td>O</td><td>PLL IC clock output.</td></tr>
<tr><td>44</td><td>O-PLLCE</td><td>O</td><td>PLL IC chip enable.</td></tr>
<tr><td>45</td><td>$\overline{\text{I-TUNE/IFC}}$</td><td>I</td><td>Tuner SD detected input. IF count serial data input.</td></tr>
<tr><td>46</td><td>$\overline{\text{I-STEREO}}$</td><td>I</td><td>Tuner stereo detected input.</td></tr>
<tr><td>47</td><td>$\overline{\text{I-RMC}}$</td><td>I</td><td>System remote control signal input.</td></tr>
</table>

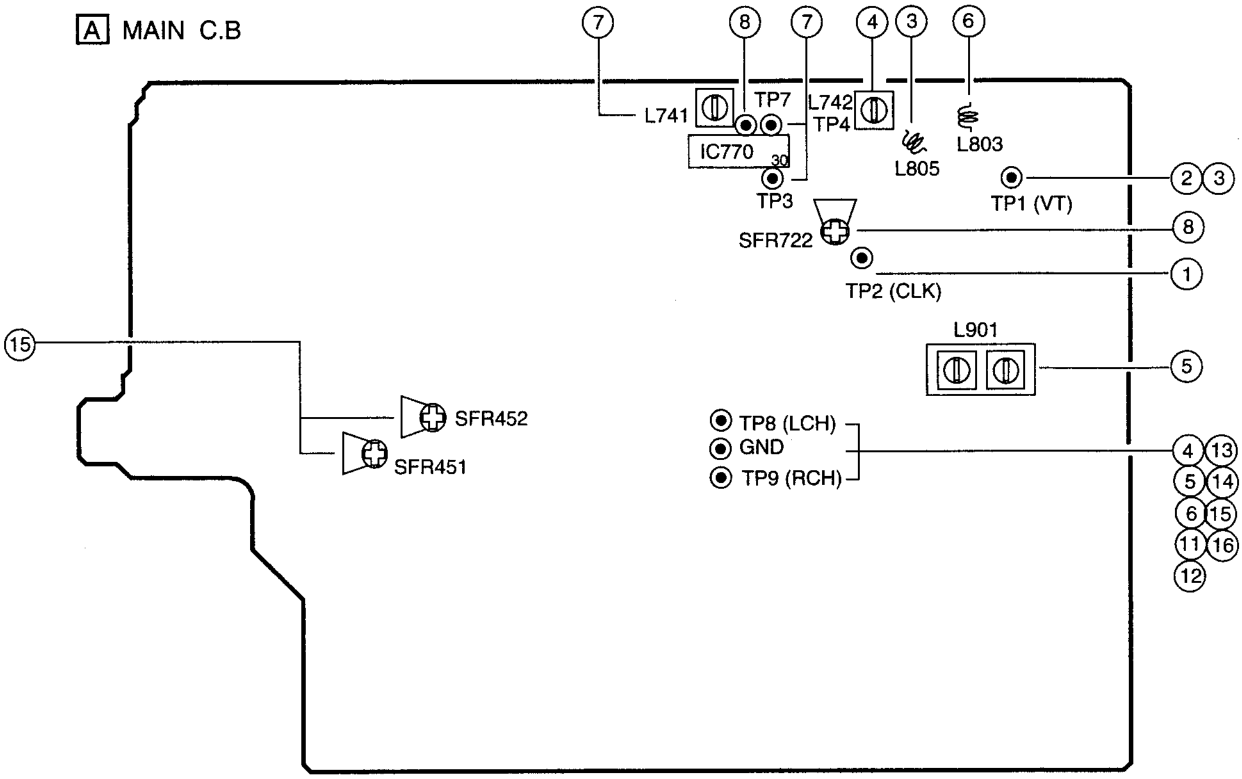
| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 48 | IC | - | Connected to GND. |
| 49 | O-MUTE | O | System mute output. |
| 50 | $\overline{\text{O-POWER}}$ | O | System power supply $\overline{\text{ON}}$/OFF output. |
| 51 | $\overline{\text{O-PB1}}$ | O | Playback Deck 1 and 2 switch output. "L" = Deck 1. |
| 52 | VDD | - | Power supply input. |
| 53~70 | A ~ R | O | FL segment output P24~P7. |
| 71 | -VFL | - | Power for FL display. |
| 72~77 | S ~ X | O | FL segment output P6~P1. |
| 78 | O-INITIAL | O | Output initial diode input. |
| 79 | O-TRYCLS(CD) | O | CD tray close data ouput. |
| 80 | O-TRYOPN(CD) | O | CD tray open data output. |

IC, LC72131

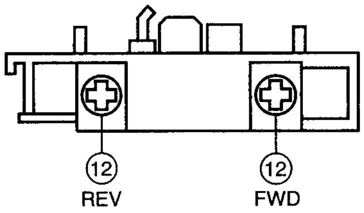
<table>
<tr><th>Pin No.</th><th>Pin Name</th><th>I/O</th><th>Description</th></tr>
<tr><td>1</td><td>XIN</td><td rowspan="2">I/O</td><td rowspan="2">A crystal oscillator (4.5MHz) is connected between these pins.</td></tr>
<tr><td>22</td><td>XOUT</td></tr>
<tr><td>2</td><td>NC</td><td>-</td><td>Not used.</td></tr>
<tr><td>3</td><td>CE</td><td>I</td><td>To enable the IC. Active "H".</td></tr>
<tr><td>4</td><td>DI</td><td>I</td><td>Digital data input from CPU (μPD78044HGF-201-3B9) when relevant key is operated. Active "H".</td></tr>
<tr><td>5</td><td>CLK</td><td>I</td><td>To clock in the data DI.</td></tr>
<tr><td>6</td><td>DO</td><td>O</td><td>Digital data output to CPU (μPD78044HGF-201-3B9).</td></tr>
<tr><td>7</td><td>8Hz</td><td>O</td><td>Outputs a reference clock signal (8Hz) for the clock.</td></tr>
<tr><td>8</td><td>$\overline{\text{MONO}}$</td><td>O</td><td>Outputs "H" when MONO is switched.</td></tr>
<tr><td>9</td><td>$\overline{\text{FM}}$ / SW</td><td>O</td><td>Output "L" or "H" as follows:
<table>
<tr><td colspan="2">2 BAND</td><td colspan="3">3 BAND</td><td colspan="3">3 BAND</td></tr>
<tr><td>AM</td><td>FM</td><td>LW</td><td>MW</td><td>FM</td><td>MW</td><td>SW</td><td>FM</td></tr>
<tr><td>H</td><td>L</td><td>H</td><td>H</td><td>L</td><td>H</td><td>L</td><td>L</td></tr>
</table></td></tr>
<tr><td>10</td><td>$\overline{\text{MW}}$</td><td>O</td><td>Outputs "L" or "H" as follows:
<table>
<tr><td colspan="2">2 BAND</td><td colspan="3">3 BAND</td><td colspan="3">3 BAND</td></tr>
<tr><td>AM</td><td>FM</td><td>LW</td><td>MW</td><td>FM</td><td>MW</td><td>SW</td><td>FM</td></tr>
<tr><td>L</td><td>L</td><td>H</td><td>L</td><td>L</td><td>L</td><td>H</td><td>L</td></tr>
</table></td></tr>
<tr><td>11</td><td>IFC</td><td>O</td><td>To control internal counter.</td></tr>
<tr><td>12</td><td>IFI</td><td>I</td><td>General purpose counter input.</td></tr>
<tr><td>13</td><td>$\overline{\text{TUNE}}$</td><td>I</td><td>Receives "L" when station is tuned.</td></tr>
<tr><td>14</td><td>NC</td><td>-</td><td>Not used.</td></tr>
<tr><td>15</td><td>AMI</td><td>I</td><td>Receives the AM local oscillator frequency signal.</td></tr>
<tr><td>16</td><td>FMI</td><td>I</td><td>Receives the FM local oscillator frequency signal.</td></tr>
<tr><td>17</td><td>VPU</td><td>-</td><td>Supply power to IC (+5V).</td></tr>
<tr><td>18</td><td>PD</td><td>O</td><td>PLL charge pump output.</td></tr>
<tr><td>19</td><td>AIN</td><td>I</td><td rowspan="2">The MOS transistor for PLL active low pass filter.</td></tr>
<tr><td>20</td><td>AOUT</td><td>O</td></tr>
<tr><td>21</td><td>VSS</td><td>-</td><td>Ground.</td></tr>
</table>

# ADJUSTMENT – 1 <TUNER / DECK>

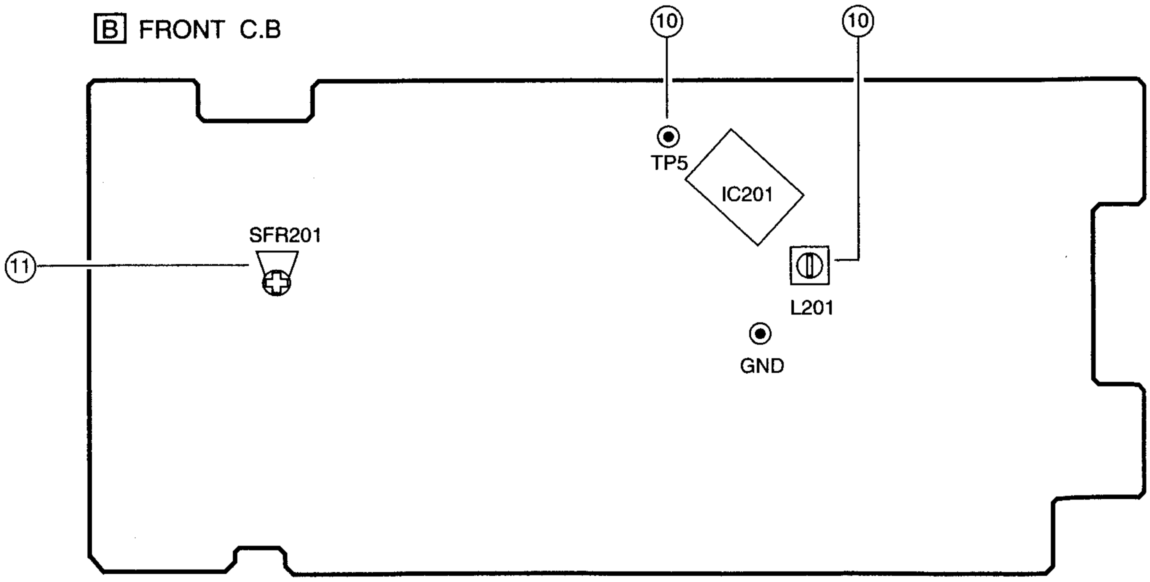
A MAIN C.B


⑦
⑧
⑦
④
③
⑥
L741
TP7
L742
TP4
IC770
30
TP3
L805
L803
TP1 (VT)
②③
SFR722
⑧
TP2 (CLK)
①
L901
⑤
⑮
SFR452
SFR451
TP8 (LCH)
GND
TP9 (RCH)
④⑬
⑤⑭
⑥⑮
⑪⑯
⑫

DECK–1 P, DECK–2 R / P / E HEAD



B FRONT C.B


⑩
⑩
TP5
IC201
SFR201
⑪
L201
GND

## < TUNER SECTION >

1. Clock Frequency Check
   Settings : • Test point : TP2
   Method : Set to AM 1710kH and check that the test point is 2160kHz ± 0.08kHz.

2. AM VT Check
   Settings : • Test point : TP1 (VT)
   Method : Set to AM 1710kHz and check that the test point is 6.2V ± 1.0V.

3. FM VT Adjustment
   Settings : • Test point : TP1 (VT)
   • Adjustment location : L805
   Method : Set to FM 87.5MHz, 108.0MHz and check that the test point is more than 1.0V (87.5MHz) and adjust L805 so that the test point becomes 7.0V ± 0.05V (108.0MHz).

4. AM IF Adjustment
   Settings : • Test point : TP8,TP9
   • Input level : adjustable
   • Adjustment location : L742
   Method : Set to AM 1000kHz and adjust L742 so that the test point becomes maximum.

5. AM Tracking Adjustment
   Settings : • Test point : TP8, TP9
   • Adjustment location :
   L901 ............ 1000kHz
   Method : Set to AM 1000kHz and adjust L901 so that the test point become maximum.

6. FM Tracking Adjustment
   Settings : • Test point : TP8, TP9
   • Adjustment location : L803
   Method : The level at 87.5MHz is adjusted by L803 so that the test point is 0dB ± 6dB (87.5MHz) and 4dB ± 6dB (108.0MHz)

7. DC Balance / Mono Distortion Adjustment
   Settings : • Test point : TP3, TP4
   • Adjustment location : L741
   • Input level : 54dB
   Method : Set to FM 98.0MHz and adjust L741 so that the voltage between TP3 and TP4 becomes 0V ± 0.04V.
   Next, check that the distortion is less than 3% .

8. Auto Stop Level Adjustment
   Settings : • Test point : TP7
   • Adjustment location : SFR722
   • Input level : 54dB
   Method : Set to FM 98.0 MHz and adjust voltage low (about 0.1V) by SFR722. After that voltage high (about 7.0V) by 2dB down.

9. Auto Stop Level Check

   AM
   Method : Check auto stop at AM 1000kHz and the level is 43 ~ 68 dB.

   FM
   Method : Check auto stop at FM 98.0MHz and the level is 20 dB ± 10 dB

10. µ-con Clock Adjustment
    Settings : • Test point : TP5
    • Adjustment location : L201
    Method : Connect frequency counter across TP5 and GND then adjust L201 so that the test point becomes 511.47 ± 0.4Hz.

## < DECK SECTION >

11. Tape Speed Adjustment
    Settings : • Test tape : TTA–410
    • Test point : TP8, TP9
    • Adjustment location : SFR201
    Method : Play back the test tape and adjust SFR201 so that the frequency counter reads 3000Hz ± 5Hz.

12. Head Azimuth Adjustment
    Settings : • Test tape : TTA–410
    • Test point : TP8, TP9
    • Adjustment location : Head azimuth adjustment screw
    Method : Play back the 10kHz signal of the test tape and adjust screw so that the output becomes maximum. Next, perform on each FWD and REV PLAYmode.

13. PB Frequency Response Check (DECK 1, DECK 2)
    Settings : • Test tape : TTA–320
    • Test point : TP8, TP9
    Method : Play back the 315Hz and 10kHz signals of the test tape and check that the output ratio of the 10kHz signal with respect to that of the 315Hz signal is ±5dB

14. PB Sensitivity Check (DECK 1, DECK 2)
    Settings : • Test tape : TTA–210
    • Test point : TP8, TP9
    Method : Play back the test tape and check that the output level of the test point is 150mV ± 3.0dB .

15. REC/PB Frequency Response Adjustment
    Settings : • Test tape : TTA–602
    • Test point : TP8, TP9
    • Input signal : 800Hz / 8kHz (LINE IN)
    • Adjustment location : SFR451 (Lch)
    SFR452 (Rch)
    Method : Apply a 800Hz signal and REC mode. Then adjust OSC attenuator so that the output level at the TP8, TP9 becomes 11mV. Record and play back the 800Hz and 8kHz signals and adjust SFRs so that the output of the 8kHz signals becomes 12mV (+1.0dB) ± 0.5dB with respect to that of the 800Hz signal.

16. REC/PB Sensitivity Check
    Settings : • Test tape : TTA–602
    • Test point : TP8, TP9
    • Input signal : 800Hz (LINE IN)
    Method : Apply a 800Hz signal and REC mode. Then adjust OSC attenuator so that the output level at the TP8, TP9 becomes 11mV. Record and play back the 800Hz signals and check that the output is 10mV (-1.0dB) ± 2.5dB.

## PRACTICAL SERVICE FIGURE

### <TUNER SECTION>

#### <FM SECTION>

| | |
|---|---|
| IHF Sensitivity :<br>(THD 3%) | 1dB ± 6dB [at 87.5MHz]<br>4dB ± 6dB [at 98.0MHz]<br>8dB ± 8dB [at 108.0MHz] |
| Quieting sensitivity :<br>(at S/N 50dB) | (STEREO)<br>Less than 35dB<br>[at 87.5 / 98.0 / 108.0MHz] |
| Signal to noise ratio : | (STEREO)<br>More than 60dB<br>[at 98.0MHz]<br>(MONO)<br>More than 70dB<br>[at 98.0MHz] |
| Distortion : | (STEREO)<br>Less than 2.0%<br>[at 98.0MHz]<br>(MONO)<br>Less than 1.3%<br>[at 98.0MHz] |
| Overload signal Distortion : | Less than 1.5%<br>[at 98.0MHz] |
| Auto stop level : | 15 ~ 30dB<br>[at 98.0MHz] |
| Stereo separation : | More than 28dB<br>[at 98.0MHz] |
| Intermediate frequency : | 10.7MHz |

#### <AM SECTION>

| | |
|---|---|
| Sensitivity :<br>(S/N 20dB) | Less than 66dB<br>[at 600kHz]<br>Less than 60dB<br>[at 1000kHz/1400kHz] |
| Signal to noise ratio : | More than 30dB<br>[at 1000kHz] |
| Distortion : | Less than 3.0%<br>[at 1000kHz] |
| Auto stop level : | 43dB ~ 68dB<br>[at 1000kHz] |
| Stereo separation : | More than 12dB<br>[at 1000kHz] |
| Intermediate frequency : | 450kHz |

### <DECK SECTION>

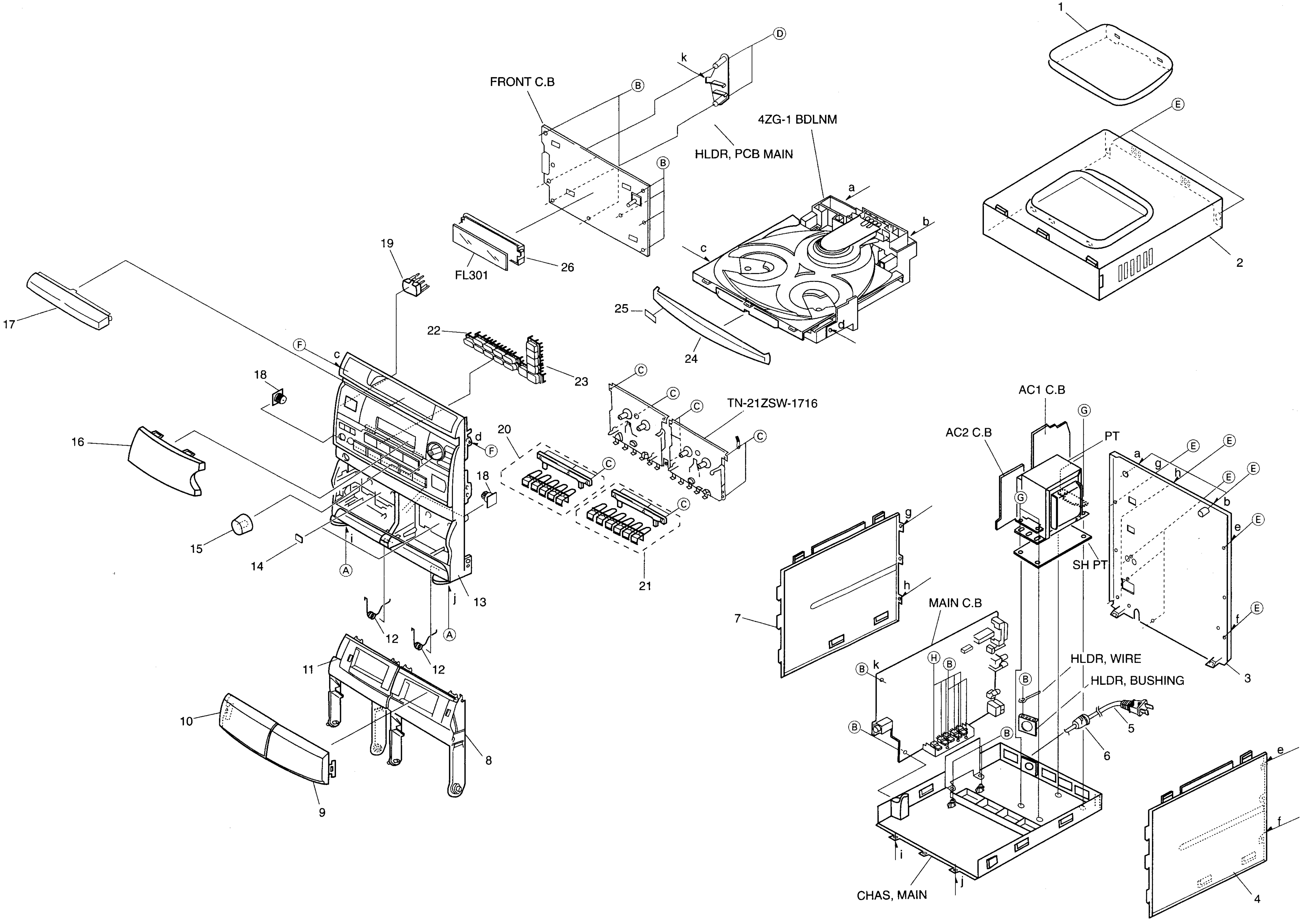
| | |
|---|---|
| Tape speed : | 3000Hz ± 45Hz |
| Wow & flutter : | Less than 0.35%<br>(RMS) |
| Take-up torque : | 30 ~ 60g-cm<br>(FWD, REV) |
| F.F & REW torque : | 55 ~ 140g-cm |
| Back tension : | 2 ~ 5g-cm<br>(FWD, REV) |
| PB output level : | 2.8V ± 3dB<br>(SP OUT 2V) |
| REC/PB output level : | 2.0V ± 3.5dB<br>(SP OUT 2V,NORM) |
| Distortion (REC/PB) : | Less than 2.0% (NORM) |
| Noise level (PB) : | Less than 25mV<br>(NORM,SP OUT 2V) |
| Noise level (REC/PB) : | Less than 30mV<br>(NORM,SP OUT 2V) |
| Crosstalk : | More than 55dB<br>(SP OUT 2V,1kHz) |
| Channel seperation : | More than 35 dB<br>(SP OUT 2V,1kHz) |
| Erasing ratio : | More than 55dB<br>(at 125Hz, 10VU,NORM) |
| Test tape : | NORM : TTA-602 |

## ACCESSORIES / PACKAGE LIST

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

| REF. NO. | PART NO. | KANRI NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 87-NF9-901-019 | | IB,U(ESF)-M<U> |
| 1 | 87-NF9-915-019 | | IB,LH(ES)-M<LH> |
| 2 | 87-A90-054-019 | | ANT,LOOP AM-CON C |
| 3 | 86-NFZ-638-119 | | RC UNIT,RC-6AS14 |
| ! 4 | 87-A90-312-019 | | PLUG,CONVERSION WTN-1157R1<LH> |

# MECHANICAL EXPLODED VIEW 1 / 1



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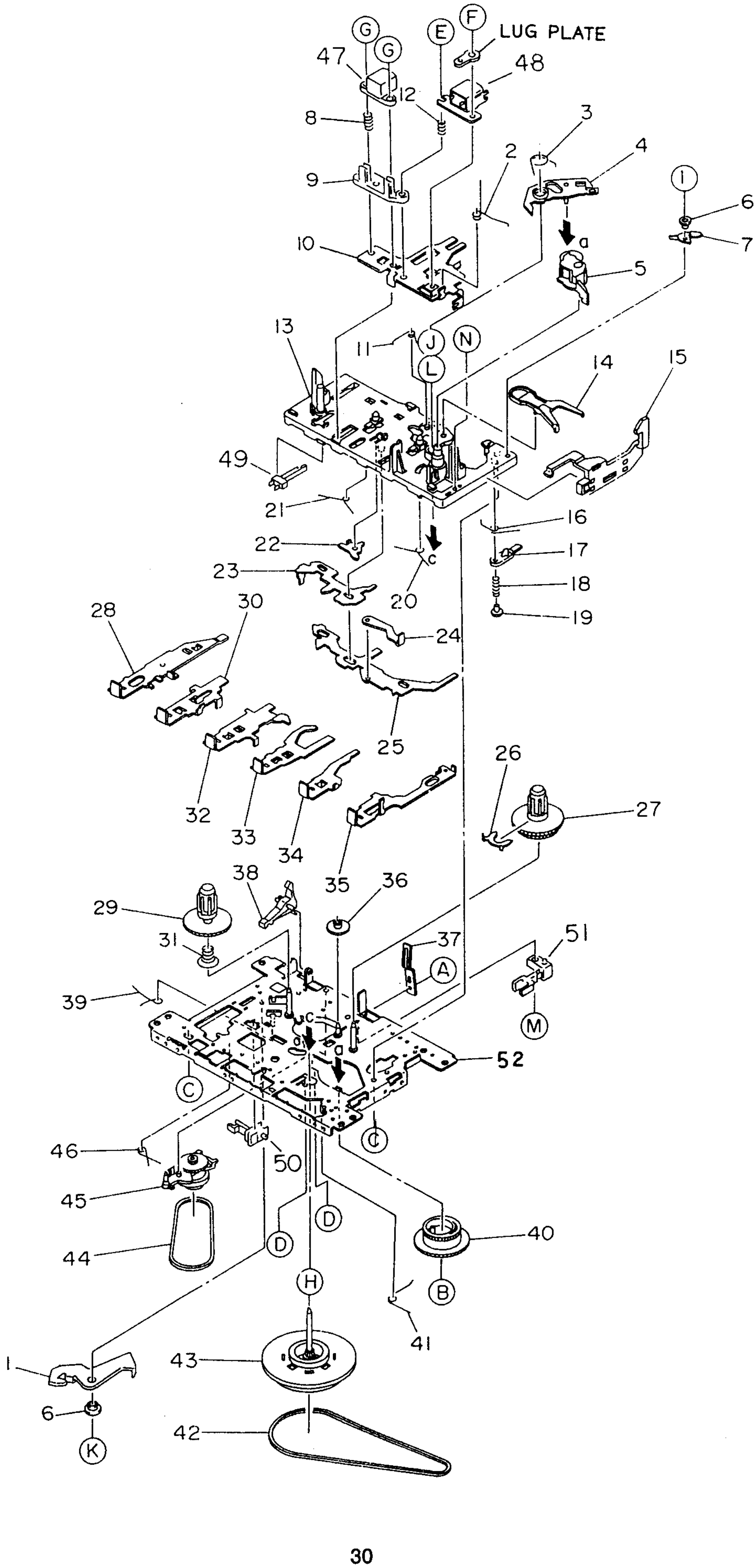
# MECHANICAL PARTS LIST 1 / 1

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

| REF. NO. | PART NO. | KANRI NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 86-NFZ-001-010 | | WINDOW,TOP |
| 2 | 87-NF9-055-010 | | PANEL,TOP |
| 3 | 87-NF9-011-010 | | CABI,REAR LHSTNM<LH> |
| 3 | 87-NF9-012-010 | | CABI,REAR USTNM<U> |
| 4 | 87-NF9-057-010 | | PANEL,RIGHT |
| ⚠ 5 | 87-050-079-010 | | AC CORD ASSY,U-2<U> |
| ⚠ 5 | 87-050-053-010 | | AC CORD ASSY,E BLK<LH> |
| 6 | 87-085-185-010 | | BUSHING, AC CORD (E)<LH> |
| 6 | 87-085-189-010 | | BUSHING, CORD (U)<U> |
| 7 | 87-NF9-056-010 | | PANEL,LEFT |
| 8 | 87-NF9-031-010 | | BOX,CASS R<LH> |
| 8 | 87-NF9-033-010 | | BOX,CASS UR<U> |
| 9 | 87-NF9-037-010 | | WINDOW,CASS R |
| 10 | 87-NF9-036-010 | | WINDOW,CASS L |
| 11 | 87-NF9-030-010 | | BOX,CASS L<LH> |
| 11 | 87-NF9-032-010 | | BOX,CASS UL<U> |
| 12 | 82-NF7-218-010 | | SPR-T,CASS |
| 13 | 87-NF9-001-010 | | CABI,FR U<U> |
| 13 | 87-NF9-003-010 | | CABI,FR LH<LH> |
| 14 | 81-532-080-010 | | LBL,CASS-COMPT |

| REF. NO. | PART NO. | KANRI NO. | DESCRIPTION |
|---|---|---|---|
| 15 | 87-NF9-048-010 | | KNOB,RTRY VOL |
| 16 | 87-NF9-040-010 | | WINDOW,DISP U |
| 17 | 87-NF9-038-010 | | WINDOW,CD |
| 18 | 87-063-164-010 | | OIL-DMPR, |
| 19 | 87-NF9-044-010 | | KEY,POWER |
| 20 | 87-NF9-041-010 | | KEY,CASS L |
| 21 | 87-NF9-042-010 | | KEY,CASS R |
| 22 | 87-NF9-046-010 | | KEY,ASSY 1 |
| 23 | 87-NF9-047-010 | | KEY,ASSY 2 |
| 24 | 87-NF9-050-010 | | PANEL,TRAY U |
| 25 | 82-NE6-067-010 | | BADGE,AIWA 30N |
| 26 | 82-NF7-210-110 | | GUIDE,FL |
| A | 87-067-581-010 | | BVT2+3-15 W/0 SLOT |
| B | 87-067-703-010 | | BVT2+3-10 W/0 SLOT |
| C | 87-067-758-010 | | BVT2+3-12 W/0 SLOT |
| D | 87-067-698-010 | | BVT2+3-18 W/0 SLOT |
| E | 87-067-761-010 | | BVT2+3-10 BLK |
| F | 87-721-097-410 | | QT2+3-12 W/O SLOT |
| G | 87-741-172-410 | | UT2+4-12 W/O SLOT |
| H | 87-067-579-010 | | BVT2+3-8 W/0 SLOT |

# TAPE MECHANISM EXPLODED VIEW 1 / 2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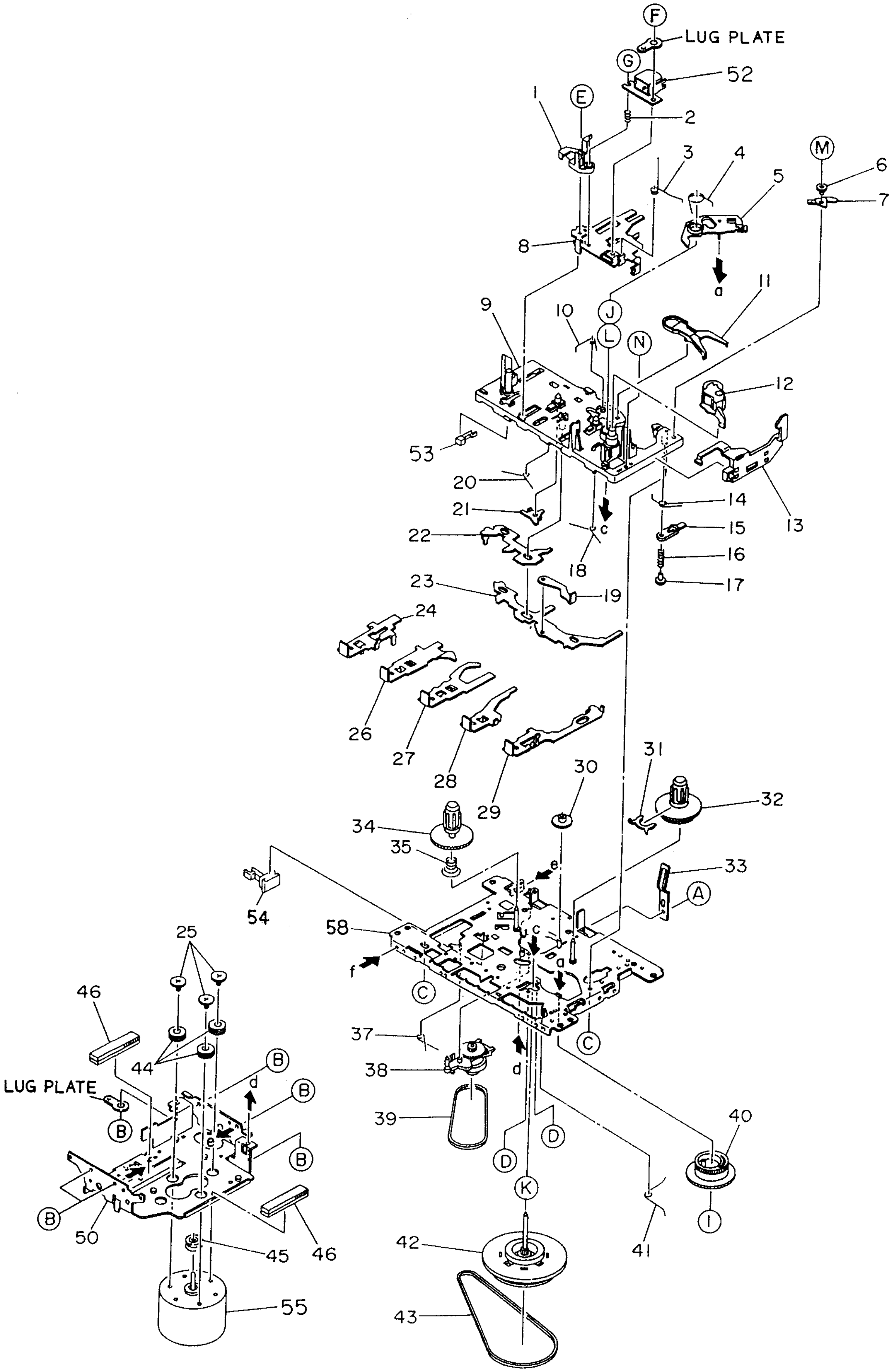
# TAPE MECHANISM PARTS LIST 1 / 2

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

| REF. NO. | PART NO. | KANRI NO. | DESCRIPTION |
|---|---|---|---|
| 1 | S1-921-020-010 | | REC ARM |
| 2 | S1-921-030-090 | | PANEL P SPRING |
| 3 | S1-921-260-050 | | GEAR PLATE SPRING |
| 4 | S1-921-265-020 | | GEAR PLATE ASSY |
| 5 | S1-921-043-100 | | PINCH ROLLER ARM ASSY |
| 6 | S1-921-140-370 | | P ARM COLLER |
| 7 | S1-921-140-340 | | P ARM |
| 8 | S1-821-030-080 | | EH SPRING |
| 9 | S1-921-030-060 | | HEAD BASE |
| 10 | S1-921-030-140 | | HEAD PANEL |
| 11 | S1-921-141-8A0 | | M CONTROL SPRING |
| 12 | S1-821-030-070 | | AZIMUTH SPRING |
| 13 | S1-921-143-180 | | BASE ASSY |
| 14 | S1-921-260-4A0 | | SENSING LEVER |
| 15 | S1-921-130-020 | | EJECT SLIDE LEVER |
| 16 | S1-921-141-3A0 | | P CONTROL SPRING |
| 17 | S1-921-140-550 | | PAUSE LEVER(E) |
| 18 | S1-921-140-120 | | PAUSE LEVER SPRING |
| 19 | S1-921-140-110 | | PAUSE STOPPER |
| 20 | S1-921-140-150 | | BUTTON LEVER SPRING(B) |
| 21 | S1-921-140-140 | | BUTTON LEVER SPRING(A) |
| 22 | S1-921-140-200 | | PR STOPPER |
| 23 | S1-921-140-090 | | SWITCH ACTUATOR |
| 24 | S1-921-140-640 | | E KICK LEVER |
| 25 | S1-921-140-080 | | PUSH BUTTON ACTUATOR |
| 26 | S1-921-050-060 | | SENSER |
| 27 | S1-921-053-030 | | TAKE UP REEL ASSY |
| 28 | S1-921-140-220 | | REC BUTTON LEVER |
| 29 | S1-921-053-040 | | SUPPLY REEL ASSY |
| 30 | S1-921-140-230 | | PLAY BUTTON LEVER |
| 31 | S1-821-100-990 | | BACK TENSION SPRING |
| 32 | S1-921-140-240 | | REW BUTTON LEVER |
| 33 | S1-921-140-250 | | FF BUTTON LEVER |
| 34 | S1-921-140-660 | | STOP BUTTON LEVER |
| 35 | S1-921-140-610 | | PAUSE BUTTON LEVER |
| 36 | S1-821-100-700 | | FF GEAR |
| 37 | S1-829-100-010 | | PACK SPRING |
| 38 | S1-821-100-690 | | RECORD SAFETY LEVER |
| 39 | S1-921-140-210 | | REC BUTTON LEVER SPRING |
| 40 | S1-921-260-020 | | CAM GEAR |
| 41 | S1-921-140-160 | | E ACTUATOR SPRING |
| 42 | S1-921-090-240 | | MAIN BELT |
| 43 | S1-921-093-030 | | FLYWHEEL ASSY |
| 44 | S1-821-070-110 | | RF BELT |
| 45 | S1-921-073-080 | | RF CLUTCH ASSY |
| 46 | S1-921-140-170 | | P.S.LEVER SPRING |
| 47 | S6-202-140-190 | | E HEAD |
| 48 | S6-201-010-750 | | R.P.HEAD RP-7442BS |
| 49 | S6-401-011-490 | | LEAF SW MSW-1541T |
| 50 | S6-401-011-610 | | LEAF SW MSW-17820MVEI |
| 51 | S6-401-010-380 | | LEAF SW MSW-1275 |
| 52 | S1-921-015-010 | | CHASSIS ASSY |
| A | S9-179-000-000 | | C TAP SCREW M2-3 |
| B | S9-422-000-000 | | P WASHER CUT 12-3.8-0.3 |
| C | S9-679-000-000 | | P TAP SCREW M2-5 |
| D | S9-999-180-090 | | TAP SCREW M2-4.5 |
| E | S9-922-000-000 | | AZIMUTH SCREW M2-8 |
| F | S9-115-000-000 | | + BIND SCREW M2-3 |
| G | S9-821-000-000 | | +-CAP SCREW M2-8 |
| H | S9-882-000-000 | | P WASHER 2-3.5-0.4 |
| I | S9-999-200-410 | | P TAP SCREW M2-3 |
| J | S9-999-030-130 | | P WASHER CUT 1.45-3.8-0. |
| K | S9-180-000-000 | | C TAP SCREW M2-4 |
| L | S9-999-000-030 | | P WASHER2.1-4-0.13 |
| M | S9-181-000-000 | | C TAP SCREW M2-5 |
| N | S9-P05-200-610 | | S TAPPING SCREW M2-6 |

# TAPE MECHANISM EXPLODED VIEW 2/2



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# TAPE MECHANISM PARTS LIST 2 / 2

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

| REF. NO. | PART NO. | KANRI NO. | DESCRIPTION |
|---|---|---|---|
| 1 | S1-921-030-4A0 | | HEAD BASE |
| 2 | S1-821-030-070 | | AZIMUTH SPRING |
| 3 | S1-921-030-090 | | PANEL P SPRING |
| 4 | S1-921-260-050 | | GEAR PLATE SPRING |
| 5 | S1-921-265-020 | | GEAR PLATE ASSY |
| 6 | S1-921-140-370 | | P ARM COLLER |
| 7 | S1-921-140-340 | | P ARM |
| 8 | S1-921-030-110 | | HEAD PANEL |
| 9 | S1-921-143-170 | | BASE ASSY |
| 10 | S1-921-141-8A0 | | M CONTROL SPRING |
| 11 | S1-921-260-4A0 | | SENSING LEVER |
| 12 | S1-921-043-100 | | PINCH ROLLER ARM ASSY |
| 13 | S1-921-130-020 | | EJECT SLIDE LEVER |
| 14 | S1-921-141-3A0 | | P CONTROL SPRING |
| 15 | S1-921-140-550 | | PAUSE LEVER(E) |
| 16 | S1-921-140-120 | | PAUSE LEVER SPRING |
| 17 | S1-921-140-110 | | PAUSE STOPPER |
| 18 | S1-921-140-150 | | BUTTON LEVER SPRING(B) |
| 19 | S1-821-011-590 | | E KICK LEVER |
| 20 | S1-921-140-140 | | BUTTON LEVER SPRING(A) |
| 21 | S1-921-140-200 | | PR STOPPER |
| 22 | S1-921-140-090 | | SWITCH ACTUATOR |
| 23 | S1-921-140-080 | | PUSH BUTTON ACTUATOR |
| 24 | S1-921-140-230 | | PLAY BUTTON LEVER |
| 25 | S1-821-120-020 | | MOTOR COLLER SCREW |
| 26 | S1-921-140-240 | | REW BUTTON LEVER |
| 27 | S1-921-140-250 | | FF BUTTON LEVER |
| 28 | S1-921-140-260 | | STOP BUTTON LEVER |
| 29 | S1-921-140-610 | | PAUSE BUTTON LEVER |
| 30 | S1-821-100-700 | | FF GEAR |
| 31 | S1-921-050-060 | | SENSER |
| 32 | S1-921-053-030 | | TAKE UP REEL ASSY |
| 33 | S1-829-100-010 | | PACK SPRING |
| 34 | S1-921-053-040 | | SUPPLY REEL ASSY |
| 35 | S1-821-100-990 | | BACK TENSION SPRING |

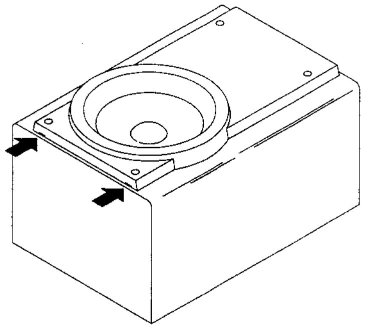
| REF. NO. | PART NO. | KANRI NO. | DESCRIPTION |
|---|---|---|---|
| 37 | S1-921-140-170 | | P.S.LEVER SPRING |
| 38 | S1-921-073-080 | | RF CLUTCH ASSY |
| 39 | S1-821-070-110 | | RF BELT |
| 40 | S1-921-260-020 | | CAM GEAR |
| 41 | S1-921-140-160 | | E ACTUATOR SPRING |
| 42 | S1-921-093-040 | | FLYWHEEL ASSY |
| 43 | S1-921-090-240 | | MAIN BELT |
| 44 | S1-820-130-060 | | MOTOR RUBBER |
| 45 | S1-921-120-130 | | MOTOR PULLEY |
| 46 | S1-921-120-120 | | ANTI VIBR FELT MAT |
| 50 | S1-921-120-110 | | MOTOR BRACKET |
| 52 | S6-201-010-750 | | R.P.HEAD RP-7442BS |
| 53 | S6-401-011-490 | | LEAF SW MSW-1541T |
| 54 | S6-401-011-610 | | LEAF SW MSW-17820MVE1 |
| 55 | S6-002-030-290 | | MOTOR EG530YD-2BH |
| 58 | S1-921-015-010 | | CHASSIS ASSY |
| A | S9-179-000-000 | | C TAP SCREW M2-3 |
| B | S9-180-000-000 | | C TAP SCREW M2-4 |
| C | S9-679-000-000 | | P TAP SCREW M2-5 |
| D | S9-999-180-090 | | TAP SCREW M2-4.5 |
| E | S9-004-000-000 | | SCREW M2-6 |
| F | S9-115-000-000 | | + BIND SCREW M2-3 |
| G | S9-922-000-000 | | AZIMUTH SCREW M2-8 |
| I | S9-422-000-000 | | P WASHER CUT 12-3.8-0.3 |
| J | S9-999-030-130 | | P WASHER CUT 1.45-3.8 |
| K | S9-882-000-000 | | P WASHER 2-3.5-0.4 |
| L | S9-999-000-030 | | P WASHER2.1-4-0.13 |
| M | S9-999-200-410 | | P TAP SCREW M2-3 |
| N | S9-P05-200-610 | | S TAPPING SCREW M2-6 |

# SPEAKER DISASSEMBLY INSTRUCTIONS

## Type.1

矢印の位置にマイナスドライバーを差し込んで、パネルを外します。各々のスピーカーユニットのビスを取り、スピーカーユニットを外してください。

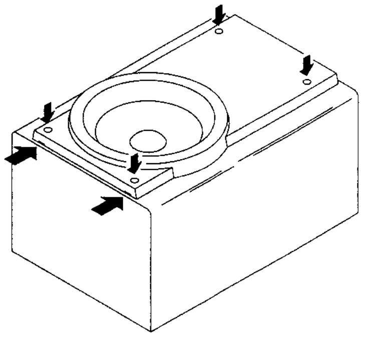
Insert a flat-bladed screwdriver into the position indicated by the arrows and remove the panel. remove the screws of each speaker unit and then remove the speaker units.



## Type.2

グリルフレームを外し、4個のゴムキャップをマイナスドライバーで端の方から持ち上げて外すと中にビスが有りますので、ビスを取り外します。矢印の位置にマイナスドライバーを差し込んで、パネルを外します。各々のスピーカーユニットのビスを取り、スピーカーユニットを外してください。

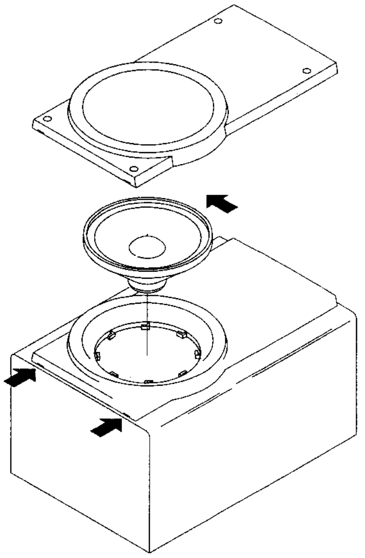
Remove the grill frame and four pieces fo rubber caps by pulling out with a flat-bladed screwdriver. Remove the screws from hole where installed rubber caps. Insert a flat-bladed screwdriver into the position indicated by the arrows and remove the panel. Remove the screws of each speaker unit and then remove the speaker units.



## Type.3

矢印の位置にマイナスドライバーを差し込んで、パネルを外します。各々のスピーカーユニットの凹にマイナスドライバーを差し込んで、反時計方向に回転させスピーカーユニットを外してください。スピーカーユニット交換後は時計方向にクリック音がするまで、回転させて取り付けます。

Insert a flat-bladed screwdriver into the position indicated by the arrows and remove the panel. Turn the speaker unit to counter-clockwise direction while inserting a flat-bladed screwdriver into one of the hollows around speaker unit, and then remove the speaker unit. After replacing the speaker unit, install it turning to clockwise direction until "click" sound comes out.



# SX-NA10 / NS10 (YU,YJ,YS,YL)
# SPEAKER PARTS LIST

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

| REF. NO. | PART NO. | KANRI NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 87-NSK-601-019 | | SPKR,120 |
| 2 | 86-NSZ-602-019 | | SPKR,CERA 14 |
| 3 | 87-NSK-001-019 | | PANEL,FR ST |
| 4 | 86-NSZ-003-019 | | NET |
| 5 | 87-NS7-611-019 | | CORD,SPKR |

# REFERENCE NAME LIST

## ELECTRICAL SECTION

| DESCRIPTION | REFERENCE NAME |
|---|---|
| ANT | ANTENNAS |
| C- | CHIP |
| C-CAP | CAP, CHIP |
| C-CAP TN | CAP, CHIP TANTALUM |
| C-COIL | COIL, CHIP |
| C-DI | DIODE, CHIP |
| C-DIODE | DIODE, CHIP |
| C-FET | FET, CHIP |
| C-FOTR | FILTER, CHIP |
| C-JACK | JACK, CHIP |
| C-LED | LED, CHIP |
| C-RES | RES, CHIP |
| C-SFR | SFR, CHIP |
| C-SLIDE SW | SLIDE SWITCH, CHIP |
| C-SW | SWITCH, CHIP |
| C-TR | TRANSISTOR, CHIP |
| C-VR | VOLUME, CHIP |
| C-ZENER | ZENER, CHIP |
| CAP, CER | CAP, CERA-SOL |
| CAP, E | CAP, ELECT |
| CAP, M/F | CAP, FILM |
| CAP, TC | CAP, CERA-SOL |
| CAP, TC-U | CAP, CERA-SOL SS |
| CAP, TN | CAP, TANTALUM |
| CERA FIL | FILTER, CERAMIC |
| CF | FILTER, CERAMIC |
| DL | DELAY LINE |
| E/CAP | CAP, ELECT |
| FILT | FILTER |
| FLTR | FILTER |
| FUSE RES | RES, FUSE |
| MOT | MOTOR |
| P-DIODE | PHOTO DIODE |
| P-SNSR | PHOTO SENSER |
| P-TR | PHOTO TRANSISTOR |
| POLY VARI | VARIABLE CAPACITOR |
| PPCAP | CAP, PP |
| PT | POWER TRANSFORMER |
| PTR, RES | PTR, MELF |
| RC | REMOTE CONTROLLER |
| RES NF | RES, NON-FLAMMABLE |
| RESO | RESONATOR |
| SHLD | SHIELD |
| SOL | SOLENOID |
| SPKR | SPEAKER |
| SW, LVR | SWITCH, LEVER |
| SW, RTRY | SWITCH, ROTARY |
| SW, SL | SWITCH, SLIDE |
| TC CAP | CAP, CERA-SOL |
| THMS | THERMISTOR |
| TR | TRANSISTOR |
| TRIMER | CAP, TRIMMER |
| TUN-CAP | VARIABLE CAPACITOR |
| VIB, CER | RESONATOR, CERAMIC |
| VIB, XTAL | RESONATOR, CRYSTAL |
| VR | VOLUME |
| ZENER | DIODE, ZENER |

## MECHANICAL SECTION

| DESCRIPTION | REFERENCE NAME |
|---|---|
| ADHESHIVE | SHEET ADHESHIVE |
| AZ | AZIMUTH |
| BAR-ANT | BAR-ANTENNA |
| BAT | BATTERY |
| BATT | BATTERY |
| BRG | BEARING |
| BTN | BUTTON |
| CAB | CABINET |
| CASS | CASSETTE |
| CHAS | CHASSIS |
| CLR | COLLAR |
| CONT | CONTROL |
| CRSR | CURSOR |
| CU | CUSHION |
| CUSH | CUSHION |
| DIR | DIRECTION |
| DUBB | DUBBING |
| FL | FRONT LOADING |
| FLY-WHL | FLYWHEEL |
| FR | FRONT |
| FUN | FUNCTION |
| G-CU | G-CUSHION |
| HDL | HANDOL |
| HIMERON | CLOTH |
| HINGE, BAT | HINGE, BATTERY |
| HLDR | HOLDER |
| HT-SINK | HEAT SINK |
| IB | INSTRUCTION BOOKLET |
| IDLE | IDLER |
| IND, L-R | INDICATOR, L-R |
| KEY, CONT | KEY, CONTROL |
| KEY, PRGM | KEY, PROGRAM |
| KNOB, SL | KNOB, SLIDE |
| LBL | LABEL |
| LID, BATT | LID, BATTERY |
| LID, CASS | LID, CASSETTE |
| LVR | LEVER |
| P-SP | P-SPRING |
| PANEL, CONT | PANEL, CONTROL |
| PANEL, FR | PANEL, FRONT |
| PRGM | PROGRAM |
| PULLY, LOAD MO | PULLY, LOAD MOTOR |
| RBN | RIBBON |
| S- | SPECIAL |
| SEG | SEGMENT |
| SH | SHEET |
| SHLD-SH | SHIELD-SHEET |
| SL | SLIDE |
| SP | SPRING |
| SP-SCREW | SPECIAL-SCREW |
| SPACER, BAT | SPACER, BATTERY |
| SPR | SPRING |
| SPR-P | P-SPRING |
| SPR-PC-PUSH | P-SPRING, C-PUSH |
| T-SP | T-SPRING |
| TERM | TERMINAL |
| TRIG | TRIGGER |
| TUN | TUNING |
| VOL | VOLUME |
| W | WASHER |
| WHL | WHEEL |
| WORM-WHL | WORM-WHEEL |

| サービス技術ニュース | |
|---|---|
| 番号 | 連絡内容 |
| G— — | |
| G— — | |
| G— — | |

**アイワ株式会社**
**AIWA CO.,LTD.**

9620450,750038

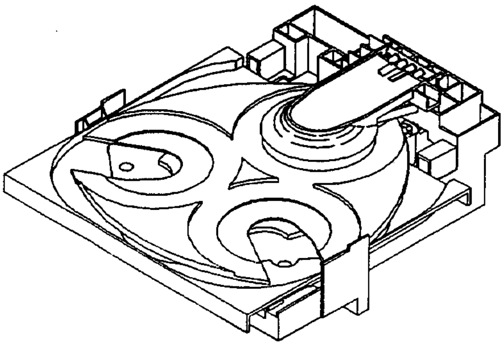
Tokyo Japan

〒110 東京都台東区池之端1—2—11 ☎03（3827）3111 （代表）

Printed in Singapore

VIDE-V16442

# 4ZG-1
# 4ZG-1A
# 4ZG-1B
# 4ZG-1Z



## CD MECHANISM

• BASIC CD MECHANISM: KSM-2 131 BAM
3ZG-2 C1 / 3ZG-2 C2 / 3ZG-2 C5 •TYPE: English

| BASIC NAME | | DERIVATION NAME | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4ZG-1 | *1 | – | – | – | – | WR | – | – | – |
| | *2 | G | D | F | R | – | V3L | V4L | V5 |
| 4ZG-1A | | G | D | – | – | – | – | – | – |
| 4ZG-1B | | G | D | – | – | – | – | – | – |
| 4ZG-1Z | | – | D | – | – | – | – | – | – |

●*1,*2, have the same BASIC NAME but the board structures are different. The CD BLOCK,VCD BLOCK of the WR are shown on the SERVICE MANUAL of each DERIVATION NAME .

●This mechanism has various derivation. Derivation name is indicated by the Service Manual for eath model.

●For different version of mechanism that may be introduced since the issue of this manual, only the new or modified points be discussed.

SERVICE MANUAL

S/M Code No. 09-965-128-10T

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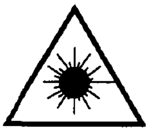
# PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs laser. Therefore, be sure to follow carefully the instructions below when servicing.

**WARNING!**
WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION. BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.



- Caution: Invisible laser radiation when open and interlocks defeated avoid expo-sure to beam.
- Advarsel: Usynlig laserståling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

**VAROITUS!**
Laiteen Käyttäminen muulla kuin tässä käyttöohjeessa mainit-ulla tavalla saattaa altistaa käyt-täjän turvallisuusluokan 1 ylit-tävälle näkymättömälle lasersäteilylle.

**VARNING!**
Om apparaten används på annat sätt än vad som specificeras i denna bruksanvising, kan användaren utsättas för osynling laserstrålning, som överskrider gränsen för laserklass 1.

**CAUTION**
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radi-ation exposure.

**ATTENTION**
L'utilisation de commandes, réglages ou procédures autres que ceux spécifiés peut entraîner une dangereuse exposition aux radiations.

**ADVARSEL!**
Usynlig laserståling ved åbning, når sikkerhedsafbrydereer ude af funktion. Undgå udsættelse for stråling.

This Compact Disc player is classified as a CLASS 1 LASER product.
The CLASS 1 LASER PRODUCT label is located on the rear exterior.

| | |
|---|---|
| CLASS 1 | LASER PRODUCT |
| KLASSE 1 | LASER PRODUKT |
| LUOKAN 1 | LASER LAITE |
| KLASS 1 | LASER APPARAT |

This is the SERVICE MANUAL for the BASIC CD MECHANISM of BASIC NAME: 4ZG-1. This BASIC NAME includes the following models as shown under the SUFFIX name: DERIVATION NAME. Please use this manual with the separate SERVICE MANUAL for DERIVATION NAME.

BASIC CD MECHANISM: 4ZG-1 AGD

SUFFIX
(DERIVATION NAME)

BASIC NAME: 4ZG-1 (ORIGINAL MODEL)
4ZG-1A (SONY IC MODEL)
4ZG-1B (TOSHIBA IC MODEL)
4ZG-1Z (SANYO IC MODEL)

| BASIC NAME | | DERIVATION NAME | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4ZG-1 | *1 | — | — | — | — | WR | — | — | — |
| | *2 | G | D | F | R | — | V3L | V4L | V5 |
| 4ZG-1A | | G | D | — | — | — | — | — | — |
| 4ZG-1B | | G | D | — | — | — | — | — | — |
| 4ZG-1Z | | — | D | — | — | — | — | — | — |

**NOTE:**
- *1 and *2 have the same BASIC NAME but the board structures are different.
- The CD BLOCK, VCD BLOCK of the WR is shown on the SERVICE MANUAL of each DERIVATION NAME.
- Model 4ZG-1 A, B and Z has "F" as the standard installation.

| BOARD NAME / BASIC NAME | | 3CD C.B | LED C.B | T-T C.B | MOTOR C.B | MAIN VCD C.B | CD MECHA C.B | VCD C.B | DRIVE C.B |
|---|---|---|---|---|---|---|---|---|---|
| 4ZG-1 | *1 | — | — | ○ | — | — | — | — | ○ |
| 4ZG-1 | *2 | — | ○ | ○ | — | ○ | ○ | ○<br>(EXCEPT V5) | — |
| 4ZG-1A | | ○ | ○ | ○ | ○ | — | — | — | — |
| 4ZG-1B | | ○ | ○ | ○ | ○ | — | — | — | — |
| 4ZG-1Z | | ○ | ○ | ○ | — | — | — | — | ○ |

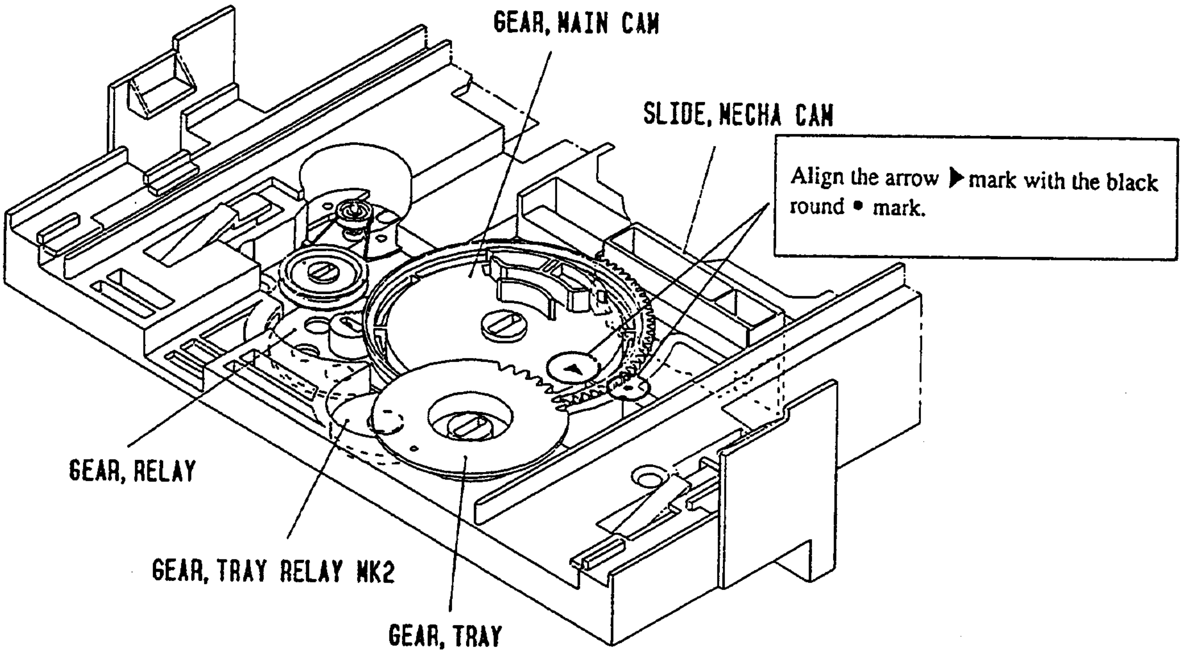
## DERIVATION NAME

| | |
|---|---|
| G: | Supporting the CD graphic feature |
| D: | Digital output function |
| F: | CD WINDOW Flash function (LED: AMBER/GREEN) |
| R: | Round Tray |
| WR: | With out Video CD and CD graphic board. |
| V3L: | Supporting the video CD function PAL |
| V4L: | Supporting the video CD function PAL |
| V5: | Supporting the video CD function |

## How to Adjust the Rotating Phase of the Gear, Main Cam

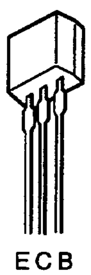
1) Push down the hooking catch of the CHAS. MECH, and remove the TRAY.
2) Align the arrow mark of the Gear, Main Cam with the black round mark of the CHAS, MECHA as shown below.
3) Confirm that the Slide, Mech Cam is located in the right position, then insert the TRAY gently.

Caution: If the rotating phase of the Gear, Main Cam is incorrectly adjusted, the chucking operation and tray movement will have malfunction.

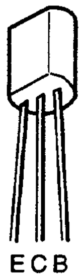

GEAR, MAIN CAM
SLIDE, MECHA CAM
GEAR, RELAY
GEAR, TRAY RELAY MK2
GEAR, TRAY

Align the arrow ▶ mark with the black round • mark.

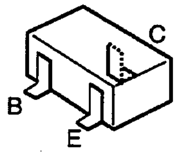
## TRANSISTOR ILLUSTRATION



2SA933

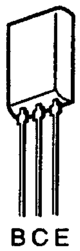


2SA1296
2SA1318
2SC1815
2SC2001
2SD655
2SD2172

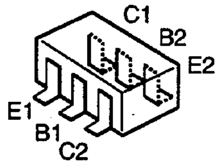


2SA1037
2SA1162
2SA1362
2SA1576
2SC2712
2SC3326
2SC4081
2SD1383

DTA123JK
DTA144TK
DTC114TK
DTC123JK
DTC124XK
DTC143TK
RN1441



2SD2005


C1
B2
E2
E1
B1
C2

HN1C03

# 4ZG-1

## ELECTRICAL MAIN PARTS LIST

DESCRIPTIONで判断できない物は“REFERENCE NAME LIST”を参照してください。
If can’t understand for Description please kindly refer to “REFERENCE NAME LIST”.

| REF. NO. | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| IC | | | |
| | SC-L48-000-000 | | IC,CL480<V3L> |
| | S4-730-42X-010 | | IC,HD6473042F16(5EULF6)<V4L> |
| | SC-XD1-178-Q00 | | IC,CXD1178Q<V3L> |
| | SA-T27-C51-2R1 | | IC,AT27C512R-15JC<V3L> |
| | SX-D11-86X-010 | | IC,CXD1186CR(5EUNFC)<V4L> |
| | SC-008-K81-R10 | | IC,BR6265AF-10LL(5EUMFS)<V4L> |
| | ST-C51-425-6BJ | | IC,TC514256BJ-70<V3L> |
| | SC-032-K81-MA0 | | IC,M5M5256CFP-70LL(5EUMFS)<V4L> |
| | 87-001-948-080 | | IC,PST572CMT(5EUBFP)<V4L> |
| | SD-493-07X-010 | | IC,HD49307(5EUNFH)<V4L> |
| | SM-C68-MC7-05C | | IC,MC68HC705C8ACP<V3L> |
| | 87-002-259-080 | | IC,uPD6376GS<V3L> |
| | 87-001-607-080 | | IC,BA4558F<V3L> |
| | 82-NV1-628-080 | | IC,CXA1645M(5EUBFC)<V3L,V4L> |
| | SP-D63-210-010 | | IC,UPD63210GT-E1(5EUNFU)<V4L> |
| | SS-N74-HCU-04D | | IC,SN74HCU04DR<V3L> |
| | S1-010-XXX-010 | | IC,UPD61010AGD-LBD(5EULF6)<V4L> |
| | SC-170-CXX-010 | | IC,TC170C100AF-001(5EUKFT)<V4L> |
| | SC-256-KG1-T10 | | IC,TC514260BJ-70(5EULMD)<V4L> |
| | SC-000-002-000 | | IC,TC514260BJ-70(5EULMD)<V4L> |
| | SL-C29-32X-010 | | IC,TLC2932IPW(5EUNFT)<V4L> |
| | 87-017-745-019 | | IC,CXA1782BQ<EXCEPT V5,WR> |
| | 87-002-783-110 | | IC,CXD2500BQ<EXCEPT WR> |
| | 87-A20-257-049 | | IC,BA6791FP<V5> |
| | 87-070-120-049 | | IC,BA6897 FP<EXCEPT V5,WR> |
| | 87-070-429-019 | | IC,NJM2244L<EXCEPT V5,WR> |
| | 87-002-532-019 | | IC,PQ05RF11<V5> |
| | 87-017-825-019 | | IC,GP1F32T<D,V5> |
| | 87-001-873-019 | | IC,LB1644<V5> |
| | 84-ZG1-639-010 | | C-IC,MB89627<V5> |
| | ST-C74-HC2-570 | | IC,TC74HC257<V3L> |
| | 83-NFT-618-010 | | IC,UPD78044BGF<V3L> |
| | 85-MAR-614-010 | | IC,UPD78044BGF-025<V4L> |
| | 87-070-430-019 | | IC,LA6530<EXCEPT V5,WR> |
| | 87-017-543-089 | | IC,PST 600D<V5> |
| | 87-A20-255-049 | | C-IC,SN74LV373NS<V5> |
| | 87-A20-251-049 | | C-IC,BR6265BF-N10SL<V5> |
| | 87-A20-252-049 | | C-IC,SN74LV00NS<V5> |
| | 87-A20-253-049 | | C-IC,SN74LV04NS<V5> |
| | 87-A20-254-049 | | C-IC,SN74LV32NS<V5> |
| | 87-A20-244-010 | | C-IC,CL484<V5> |
| | 87-020-881-089 | | IC,NJM78L05A<EXCEPT V5,WR> |
| | 87-A20-200-040 | | C-IC,HM514260CJ7/CLJ7<V5> |
| | 87-017-888-089 | | IC,NJM4558MD<V4L> |
| | 84-ZG1-640-049 | | C-IC,LH5317<V5> |
| | 87-A20-256-049 | | C-IC,PQ20VZ5U<V5> |
| | 87-A20-247-019 | | C-IC,BU1417AK<V5> |
| | 87-017-802-010 | | IC,LC7872E<G> |
| | 87-A20-248-049 | | C-IC,BU2173F<V5> |
| | 87-017-803-010 | | IC,LC32464P-80<G> |
| | 87-A20-258-040 | | C-IC,SM5877AM<V5> |
| TRANSISTOR | | | |
| | SC-408-1XX-010 | | TR,2SC4081(5EQQ2S)<V4L> |
| | S1-441-XXX-010 | | TR,RN1441-A(5EQQRN)<V4L> |
| | SA-157-6XX-010 | | TR,2SA1576(5EQQ2S)<V4L> |
| | 89-111-625-089 | | C-TR,2SA1162GR<EXCEPT V5,WR> |
| | 87-026-237-089 | | C-TR,DTC124XK<EXCEPT WR> |
| | 87-327-125-089 | | C-TR,2SC2712 GR<V5> |
| | 89-113-625-089 | | C-TR 2SA 1362 GR(TAPG)<V5> |
| | 89-327-125-089 | | C-TR,2SC2712GR<EXCEPT WR> |
| | 89-112-965-089 | | TR,2SA1296GR<EXCEPT WR> |
| | 87-026-608-089 | | C-TR,DTC 123 JK<F> |
| | 89-324-585-010 | | TR,2SC2458<V3L> |
| | 89-333-266-089 | | C-TR,2SC3326B<EXCEPT V5,WR> |
| | 87-026-580-089 | | C-TR,DTA123JK<EXCEPT WR> |
| | 87-026-470-089 | | TR,HN1C03 F B<V5> |
| | 89-318-155-089 | | TR,2SC1815 GR<V5> |
| DIODE | | | |
| | S0-041-480-000 | | DIODE,1N4148<V3L> |
| | S1-305-700-283 | | DIODE,DA115(5EDQDD)<V4L> |
| | S0-240-010-000 | | DIODE,1N4001<V3L> |
| | SA-P20-2UX-010 | | DIODE,DAP202U(5EDQDD)<V4L> |
| | 87-002-608-089 | | DIODE,DSF10TC<V4L> |
| | 87-017-430-090 | | DIODE,RK14<V3L> |
| | 87-020-465-089 | | DIODE,ISS133<EXCEPT V5,WR> |
| | SM-TZ2-7B0-000 | | ZENER,MTZ2.7B<V3L> |
| | 87-020-027-089 | | C-DIODE 1SS184<V5> |
| | 87-A40-180-049 | | C-DIODE SB07-015 C<V5> |
| | 87-A40-196-089 | | C-ZENER UDZ6.2 B<V5> |
| MAIN VCD C.B<V3L,V4L> | | | |
| C101 | 87-012-140-089 | | C-CAP,S 470P-50 CH<EXCEPT WR> |
| C102 | 87-010-194-089 | | C-CAP,S 0.047-25 F |
| C103 | 87-010-178-089 | | C-CAP,S 1000P-50 B |
| C104 | 87-012-156-089 | | C-CAP,S 220P-50 CH |
| C105 | 87-010-384-089 | | CAP,E 100-25 SME |
| C106 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C107 | 87-010-314-089 | | C-CAP,S 22P-50 CH |
| C108 | 87-010-314-089 | | C-CAP,S 22P-50 CH |
| C110 | 87-010-221-089 | | CAP,E 470-10 11L |
| C111 | 87-010-320-089 | | C-CAP,S 68P-50 CH |
| C112 | 87-010-196-089 | | C-CAP,S 0.1-25 F<V4L> |
| C112 | 87-016-463-089 | | C-CAP,S 0.33-16 B<V3L> |
| C113 | 87-010-260-089 | | CAP,E 47-25 SME |
| C114 | 87-010-498-049 | | CAP,E 10-16 GAS |
| C115 | 87-010-498-049 | | CAP,E 10-16 GAS<G> |
| C116 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C117 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C118 | 87-010-553-049 | | CAP,E 47-16 GAS<V4L> |
| C119 | 87-010-553-049 | | CAP,E 47-16 GAS |
| C120 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C121 | 87-010-384-089 | | CAP,E 100-25 SME<V4L> |
| C122 | 87-010-320-089 | | C-CAP,S 68P-50 CH<D> |
| C123 | 87-010-401-089 | | CAP,E 1-50 SME |
| C124 | 87-A10-011-019 | | CAP,E 2200-25 SMG |
| C125 | 87-010-322-089 | | C-CAP,S 100P-50 CH |
| C126 | 87-010-178-089 | | C-CAP,S 1000P-50 B |
| C127 | 87-010-314-089 | | C-CAP,S 22P-50 CH<G> |
| C128 | 87-010-320-089 | | C-CAP,S 68P-50 CH |
| C129 | 87-010-263-089 | | CAP,E 100-10 SME<D> |
| C130 | 87-010-197-089 | | C-CAP,S 0.01-25 B<D> |
| C131 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C132 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C133 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C134 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C135 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C136 | 87-010-154-089 | | C-CAP,S 10P-50 CH<V4L> |
| C201 | 87-010-382-089 | | CAP,E 22-25 SME |
| C202 | 87-010-197-089 | | C-CAP,S 0.01-25 B |

| REF. NO. | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| C203 | 87-010-382-089 | | CAP,E 22-25 SME |
| C204 | 87-010-381-089 | | CAP,E 330-16 SME |
| C205 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C206 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C207 | 87-010-498-049 | | CAP,E 10-16 GAS<F> |
| C208 | 87-010-405-089 | | CAP,E 10-50 SME |
| C301 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C306 | 87-010-381-089 | | CAP,E 330-16 SME<V4L> |
| C307 | 87-010-553-049 | | CAP,E 47-16 GAS |
| C308 | 87-010-498-049 | | CAP,E 10-16 GAS |
| C309 | 87-010-404-089 | | CAP,E 4.7-50 SME<V4L> |
| C310 | 87-010-404-089 | | CAP,E 4.7-50 SME<V4L> |
| C311 | 87-012-140-089 | | C-CAP,S 470P-50 CH<V4L> |
| C312 | 87-012-140-089 | | C-CAP,S 470P-50 CH<V4L> |
| C313 | 87-010-384-089 | | CAP,E 100-25 SME<V4L> |
| C315 | 87-010-404-089 | | CAP,E 4.7-50 SME<V4L> |
| C316 | 87-010-404-089 | | CAP,E 4.7-50 SME<V4L> |
| C317 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C318 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C401 | 87-010-405-089 | | CAP,E 10-50 SME<G> |
| C402 | 87-010-314-089 | | C-CAP,S 22P-50 CH<G> |
| C403 | 87-010-315-089 | | C-CAP,S 27P-50 CH<G> |
| C406 | 87-010-384-089 | | CAP,E 100-25 SME<G> |
| C407 | 87-010-384-089 | | CAP,E 100-25 SME<G> |
| C408 | 87-010-196-089 | | C-CAP,S 0.1-25 F<G> |
| C409 | 87-010-196-089 | | C-CAP,S 0.1-25 F<G> |
| CON6 | 83-NFT-628-019 | | CONN ASSY,8P<V3L> |
| EM101 | 87-008-474-089 | | F-BEAD,EMI BL02RN1 |
| EM102 | 87-008-474-089 | | F-BEAD,EMI BL02RN1 |
| FC1 | 85-NFT-612-019 | | FF-CABLE,30P-1.0<V4L> |
| FC2 | 88-912-131-219 | | FF-CABLE,12P 1.25 |
| FC3 | 85-MAR-617-019 | | FF-CABLE,6P-1.25 |
| J101 | 87-009-502-019 | | JACK,PIN 1PY EARTH |
| L101 | 87-003-149-089 | | COIL,47UH |
| L102 | 87-003-149-089 | | COIL,47UH |
| L103 | 87-003-143-089 | | COIL,4.7UH |
| L401 | 87-003-149-089 | | COIL,47UH<G> |
| L402 | 87-003-149-089 | | COIL,47UH<G> |
| M401 | 87-045-305-019 | | MOTOR, RF-500TB |
| PR101 | 87-026-689-089 | | PROTECTOR,1A 60V 491 |
| SW201 | 87-036-109-019 | | SW,PUSH SPPB 61 |
| SW202 | 87-036-109-019 | | SW,PUSH SPPB 61 |
| X101 | 87-030-270-089 | | VIB,XTAL 16.9344MHZ |
| X201 | 89-MX1-704-089 | | CERA LOCK(MU)3.9MHZ |
| X401 | 80-JUC-602-089 | | VIB,XTAL 17.73MHZ<G> |

MAIN VCD C.B<V5>

| REF. NO. | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| C101 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C102 | 87-010-550-049 | | CAP,E 100-6.3 GAS |
| C103 | 87-010-318-089 | | C-CAP,S 47P-50 CH |
| C104 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C105 | 87-010-318-089 | | C-CAP,S 47P-50 CH |
| C106 | 87-010-549-049 | | CAP,E 47-6.3 GAS |
| C107 | 87-012-156-089 | | C-CAP,S 220P-50 CH |
| C108 | 87-010-184-089 | | C-CAP,S 3300P-50 B |
| C109 | 87-010-194-089 | | C-CAP,S 0.047-25 F |
| C110 | 87-012-140-089 | | C-CAP,S 470P-50 CH |
| C111 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C112 | 87-016-461-089 | | C-CAP,S 0.47-16 F |
| C113 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C114 | 87-010-550-049 | | CAP,E 100-6.3 GAS |
| C115 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C116 | 87-010-561-049 | | CAP,E 100-16 GAS |
| C117 | 87-010-562-049 | | CAP,E 220-10 GAS |
| C118 | 87-010-553-049 | | CAP,E 47-16 GAS |
| C119 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C120 | 87-010-555-089 | | CAP,E 100-10 GAS |
| C121 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C201 | 87-010-499-049 | | CAP,E 22-6.3 GAS |
| C202 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C203 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C204 | 87-010-316-089 | | C-CAP,S 33P-50 CH |
| C205 | 87-010-316-089 | | C-CAP,S 33P-50 CH |
| C206 | 87-010-499-049 | | CAP,E 22-6.3 GAS |
| C207 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C208 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C209 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C210 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C211 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C212 | 87-010-318-089 | | C-CAP,S 47P-50 CH |
| C301 | 87-010-549-049 | | CAP,E 47-6.3 GAS |
| C302 | 87-010-549-049 | | CAP,E 47-6.3 GAS |
| C304 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C305 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C306 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C307 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C308 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C309 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C310 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C311 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C312 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C313 | 87-010-318-089 | | C-CAP,S 47P-50 CH |
| C314 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C315 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C316 | 87-010-549-049 | | CAP,E 47-6.3 GAS |
| C317 | 87-010-314-089 | | C-CAP,S 22P-50 CH |
| C319 | 87-010-314-089 | | C-CAP,S 22P-50 CH |
| C320 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C321 | 87-010-550-049 | | CAP,E 100-6.3 GAS |
| C322 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C323 | 87-010-550-049 | | CAP,E 100-6.3 GAS |
| C324 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C401 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C402 | 87-010-550-049 | | CAP,E 100-6.3 GAS |
| C403 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C404 | 87-012-140-089 | | C-CAP,S 470P-50 CH |
| C405 | 87-010-322-089 | | C-CAP,S 100P-50 CH |
| C406 | 87-012-140-089 | | C-CAP,S 470P-50 CH |
| C407 | 87-016-350-049 | | CAP,E 470-4 MA GAS |
| C408 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C409 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C410 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C411 | 87-010-550-049 | | CAP,E 100-6.3 GAS |
| C412 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C413 | 87-010-314-089 | | C-CAP,S 22P-50 CH |
| C414 | 87-010-316-089 | | C-CAP,S 33P-50 CH |
| C415 | 87-010-499-049 | | CAP,E 22-6.3 GAS |
| C416 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C418 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C420 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C421 | 87-012-140-089 | | C-CAP,S 470P-50 CH |
| C422 | 87-010-184-089 | | C-CAP,S 3300P-50 B |
| C422 | 87-010-184-089 | | C-CAP,S 3300P-50 B |
| C423 | 87-010-175-089 | | C-CAP,S 560P-50 SL |
| C424 | 87-010-317-089 | | C-CAP,S 39P-50 CH |
| C425 | 87-012-140-089 | | C-CAP,S 470P-50 CH |
| C501 | 87-010-549-049 | | CAP,E 47-6.3 GAS |
| C502 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C503 | 87-010-318-089 | | C-CAP,S 47P-50 CH |
| C505 | 87-010-313-089 | | C-CAP,S 18P-50 CH |
| C506 | 87-010-313-089 | | C-CAP,S 18P-50 CH |
| C507 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C508 | 87-010-178-089 | | C-CAP,S 1000P-50 B |
| C509 | 87-010-178-089 | | C-CAP,S 1000P-50 B |
| C510 | 87-010-178-089 | | C-CAP,S 1000P-50 B |
| C511 | 87-010-178-089 | | C-CAP,S 1000P-50 B |
| C512 | 87-010-498-049 | | CAP,E 10-16 GAS |
| C513 | 87-010-498-049 | | CAP,E 10-16 GAS |
| C514 | 87-010-318-089 | | C-CAP,S 47P-50 CH |
| C515 | 87-010-318-089 | | C-CAP,S 47P-50 CH |
| C516 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C599 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C601 | 87-010-561-049 | | CAP,E 100-16 5L |
| C602 | 87-010-432-049 | | CAP,E 10-16 OS |

| REF. NO. | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| C603 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C604 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C605 | 87-A10-222-049 | | CAP,E 22-10 OS |
| C606 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C607 | 87-012-140-089 | | C-CAP,S 470P-50 CH |
| C608 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| J401 | 87-009-502-019 | | JACK,PIN 1PY EARTH |
| L101 | 87-005-781-089 | | C-COIL,47UH FLC32C |
| L201 | 87-005-781-089 | | C-COIL,47UH FLC32C |
| L202 | 87-005-781-089 | | C-COIL,47UH FLC32C |
| L301 | 87-005-781-089 | | C-COIL,47UH FLC32C |
| L302 | 87-005-781-089 | | C-COIL,47UH FLC32C |
| L303 | 87-005-781-089 | | C-COIL,47UH FLC32C |
| L401 | 87-005-196-089 | | COIL,10UH |
| L402 | 87-005-781-089 | | C-COIL,47UH FLC32C |
| L404 | 87-005-190-089 | | COIL,3.3UH |
| L405 | 87-005-189-089 | | COIL,2.7UH |
| L501 | 87-005-781-089 | | C-COIL,47UH FLC32C |
| L601 | 87-005-469-089 | | COIL,4.7UH |
| L602 | 87-A50-095-019 | | COIL,68UH |
| M201 | 87-045-305-019 | | MOTOR, RF-500TB |
| S101 | 87-036-109-019 | | SW,PUSH SPPB 61 |
| S102 | 87-036-109-019 | | SW,PUSH SPPB 61 |
| S201 | 87-A90-162-019 | | SW,SL 1-1-3 SSSU |
| X201 | 87-A70-027-089 | | VIB,XTAL 8MHZ 100PPM |
| X401 | 87-A70-026-089 | | VIB,XTAL 13.5MHZ 50PPM |
| X501 | 87-030-270-089 | | VIB,XTAL 16.9344MHZ |

CD MECHA C.B<V3L,V4L,V5>

| REF. NO. | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| C101 | 87-010-154-089 | | C-CAP,S 10P-50 CH<EXCEPT V5> |
| C101 | 87-010-334-080 | | C-CAP,S 12P-50 CH<V5> |
| C102 | 87-010-193-089 | | C-CAP,S 0.033-25 F<V5> |
| C102 | 87-010-184-089 | | C-CAP,S 3300P-50 B<EXCEPT V5> |
| C103 | 87-010-197-089 | | C-CAP,S 0.01-25 B<EXCEPT V5> |
| C103 | 87-010-993-089 | | C-CAP,S 0.056-25<V5> |
| C104 | 87-010-193-089 | | C-CAP,S 0.033-25 F<EXCEPT V5> |
| C104 | 87-010-993-089 | | C-CAP,S 0.056-25<V5> |
| C105 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C107 | 87-010-197-089 | | C-CAP,S 0.01-25 B<V5> |
| C107 | 87-010-182-089 | | C-CAP,S 2200P-50 B<EXCEPT V5> |
| C108 | 87-010-805-089 | | C-CAP,S 1-16F |
| C109 | 87-010-322-089 | | C-CAP,S 100P-50 CH |
| C110 | 87-010-198-089 | | C-CAP,S 0.022-25 B<EXCEPT V5> |
| C110 | 87-010-993-089 | | C-CAP,S 0.056-25<V5> |
| C111 | 87-010-551-089 | | CAP ELECT 33-10V SRE<EXCEPT V5> |
| C111 | 87-010-499-049 | | CAP,E 22-6.3 GAS<V5> |
| C112 | 87-010-322-089 | | C-CAP,S 100P-50 CH |
| C113 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C114 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C115 | 87-010-196-089 | | C-CAP,S 0.1-25 F<EXCEPT V5> |
| C115 | 87-012-141-089 | | C-CAP,S 0.22-16 F<V5> |
| C116 | 87-010-182-089 | | C-CAP,S 2200P-50 B |
| C117 | 87-010-196-089 | | C-CAP,S 0.1-25 F<EXCEPT V5> |
| C117 | 87-012-141-089 | | C-CAP,S 0.22-16 F<V5> |
| C118 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C119 | 87-010-193-089 | | C-CAP,S 0.033-25 F<V5> |
| C119 | 87-010-196-089 | | C-CAP,S 0.1-25 F<EXCEPT V5> |
| C120 | 87-010-549-089 | | CAP ELECT 47-6.3V |
| C121 | 87-010-549-089 | | CAP ELECT 47-6.3V |
| C122 | 87-010-495-089 | | CAP,E 2.2-35 5L<V5> |
| C122 | 87-010-497-089 | | CAP,E 4.7-35 5L<EXCEPT V5> |
| C123 | 87-010-549-089 | | CAP ELECT 47-6.3V |
| C125 | 87-010-553-089 | | CAP,E 47-16 |
| C127 | 87-010-553-089 | | CAP,E 47-16 |
| C127 | 87-010-549-089 | | CAP,E 47-6.3 GAS |
| C128 | 87-010-549-089 | | CAP ELECT 47-6.3V |
| C129 | 87-010-182-089 | | C-CAP,S 2200P-50 B |
| C131 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C133 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C134 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C135 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C136 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C137 | 87-010-805-089 | | C-CAP,S 1-16F |
| C138 | 87-010-178-089 | | C-CAP,S 1000P-50 B |
| C140 | 87-010-805-089 | | C-CAP,S 1-16F<EXCEPT V5> |
| FC4 | 85-NFT-611-119 | | FF-CABLE,16P-1.0 |
| M101 | 87-045-356-019 | | MOT,RF-310T A 30 |
| M102 | 87-045-358-019 | | MOT,RF-310T A 43 |
| R140 | 87-022-364-089 | | C-RES,S82K-1/10WF |
| R141 | 87-022-363-089 | | C-RES,S 68K-1/10W F |
| R142 | 87-022-363-089 | | C-RES,S 68K-1/10W F |
| R143 | 87-022-363-089 | | C-RES,S 68K-1/10W F |
| R144 | 87-022-363-089 | | C-RES,S 68K-1/10W F |
| R145 | 87-022-364-089 | | C-RES,S82K-1/10WF |
| SFR101 | 87-024-175-089 | | SFR,47K DIA6 V |
| SFR102 | 87-024-176-089 | | SFR,100K DIA6 V |
| SFR103 | 87-024-175-089 | | SFR,47K DIA6 V |
| SW101 | 87-036-340-019 | | SW,LEAF LSA-1121 |

T-T C.B

| REF. NO. | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| C401 | 87-018-214-089 | | CAP TC U 0.1-50 F |
| FC401 | 84-ZG1-614-119 | | CABLE FFC 5P-1.25 |
| M401 | 87-045-364-019 | | MOTOR,(BCH3B14) |
| PS401 | 87-026-573-019 | | P-SNSR,GP1S53V |

LED C.B<F>

| REF. NO. | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| LED101 | 87-070-200-089 | | LED,SLP636C-81-S-T1<F> |
| LED102 | 87-017-350-080 | | LED,SEL1550CM<F> |
| LED103 | 87-017-350-080 | | LED,SEL1550CM<F> |
| LED104 | 87-070-200-089 | | LED,SLP636C-81-S-T1<F> |

VCD C.B<V3L>

| REF. NO. | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| C2 | 87-010-378-010 | | CAP,E 10-16 |
| C3 | 87-010-378-010 | | CAP,E 10-16 |
| C4 | 87-010-374-010 | | CAP,E 47-10 |
| C5 | 87-010-374-010 | | CAP,E 47-10 |
| C9 | 87-010-378-010 | | CAP,E 10-16 |
| C10 | 87-010-378-010 | | CAP,E 10-16 |
| C11 | 87-010-378-010 | | CAP,E 10-16 |
| C12 | 87-010-374-010 | | CAP,E 47-10 |
| C13 | 87-010-378-010 | | CAP,E 10-16 |
| C17 | 87-010-248-010 | | CAP,E 220-10 |
| C22 | 87-010-374-010 | | CAP,E 47-10 |
| C23 | 87-010-374-010 | | CAP,E 47-10 |
| C32 | 87-010-378-010. | | CAP,E 10-16 |
| C47 | 87-010-248-010 | | CAP,E 220-10 |
| C49 | 87-010-378-010 | | CAP,E 10-16 |
| C52 | 87-010-248-010 | | CAP,E 220-10 |
| C101 | 87-010-378-010 | | CAP,E 10-16 |
| L1 | SL-AL0-4NA-100 | | COIL,10UH |
| L2 | SL-AL0-4NA-472 | | COIL,4.7UH |
| X1 | SS-KY4-05M-000 | | X'TAL,40.5MHz |
| X2 | SS-KY4-M00-000 | | X'TAL,4MHz |
| X3 | SS-KY4-433-616 | | X'TAL,4.433616MHz |

VCD C.B<V4L>

| REF. NO. | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| C13 | 87-010-367-080 | | CAP,E 4.7-25V(5ECEC1) |
| C38 | 87-010-075-040 | | CAP,E 10-16V(5ECEC1) |
| C40 | 87-010-549-010 | | CAP,E 47-6.3V(5ECEC0) |
| C44 | 87-010-549-010 | | CAP,E 47-6.3V(5ECEC0) |
| C47 | 87-010-549-010 | | CAP,E 47-6.3V(5ECEC0) |
| C48 | 87-010-549-010 | | CAP,E 47-6.3V(5ECEC0) |
| C51 | 87-010-549-010 | | CAP,E 47-6.3V(5ECEC0) |
| C54 | 87-010-549-010 | | CAP,E 47-6.3V(5ECEC0) |
| C56 | 87-010-076-810 | | CAP,E 22-6.3V(5ECEC0) |
| C58 | 87-010-076-810 | | CAP,E 22-6.3V(5ECEC0) |
| C81 | 87-016-155-010 | | CAP,E 1000-6.3V5ECER0) |
| C128 | 87-010-549-010 | | CAP,E 47-6.3V(5ECEC0) |
| C133 | 87-010-053-810 | | CAP,E 1-50V(5ECEC1) |
| C150 | 87-010-075-040 | | CAP,E 10-16V(5ECEC1) |

| REF. NO. | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| C151 | 87-010-549-010 | | CAP,E 47-6.3V(5ECEC0) |
| C152 | 87-016-155-010 | | CAP,E 1000-6.3V5ECER0) |
| C157 | 87-010-075-040 | | CAP,E 10-16V(5ECEC1) |
| CT1 | S2-130-007-010 | | CAP,TRIMMER 30PF(5ECT04) |
| L1 | S7-001-XXX-100 | | C-COIL,47UH(5ELQE4) |
| X1 | S0-120-003-010 | | X'TAL,12.0000MHZ(5EXMA4) |
| X2 | S0-177-343-010 | | X'TAL,17.73447MHZ(5EXMA4) |

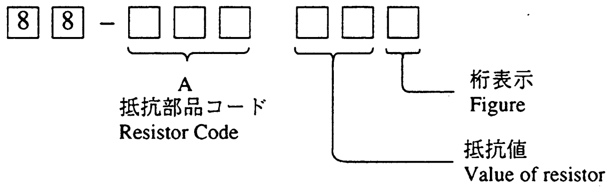
SUB C.B<V3L>

DRIVE C.B<WR>

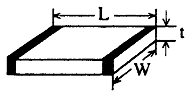
| REF. NO. | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| M1 | 87-045-358-019 | | MOT,RF-310TA 43 |
| M2 | 87-045-356-019 | | MOT,RF-310TA 30 |
| SW1 | 87-A90-042-019 | | SW,LEAF MSW 17310 MVPO |

○ チップ抵抗部品コード／CHIP RESISTOR PART CODE

チップ抵抗部品コードの成り立ち
Chip Resistor Part Coding

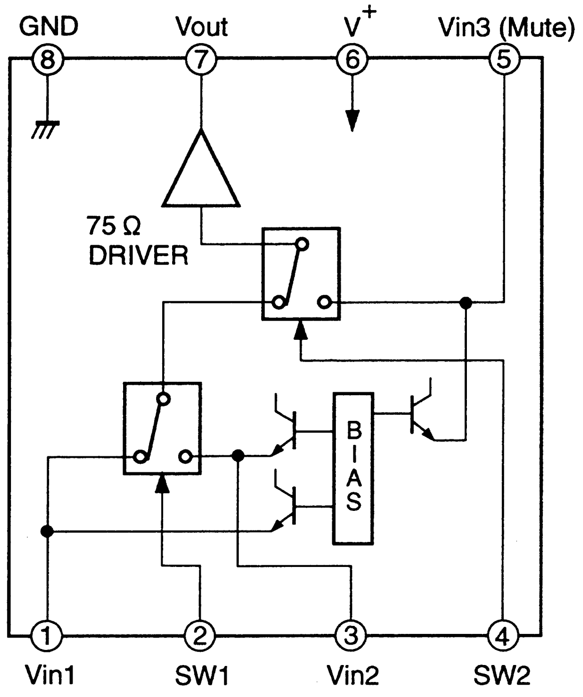

8 8 - □□□ □□□
A
抵抗部品コード
Resistor Code
桁表示
Figure
抵抗値
Value of resistor

チップ抵抗
Chip resistor

| 容量<br>Wattage | 種類<br>Type | 許容誤差<br>Tolerance | 記号<br>Symbol | 寸法／Dimensions (mm) | | | | 抵抗コード ：A<br>Resistor Code: A |
|---|---|---|---|---|---|---|---|---|
| | | | | 外形／Form | L | W | t | |
| 1／16W | 1608 | ±5% | CJ |  | 1.6 | 0.8 | 0.45 | 108 |
| 1／10W | 2125 | ±5% | CJ | | 2 | 1.25 | 0.45 | 118 |
| 1／8W | 3216 | ±5% | CJ | | 3.2 | 1.6 | 0.55 | 128 |

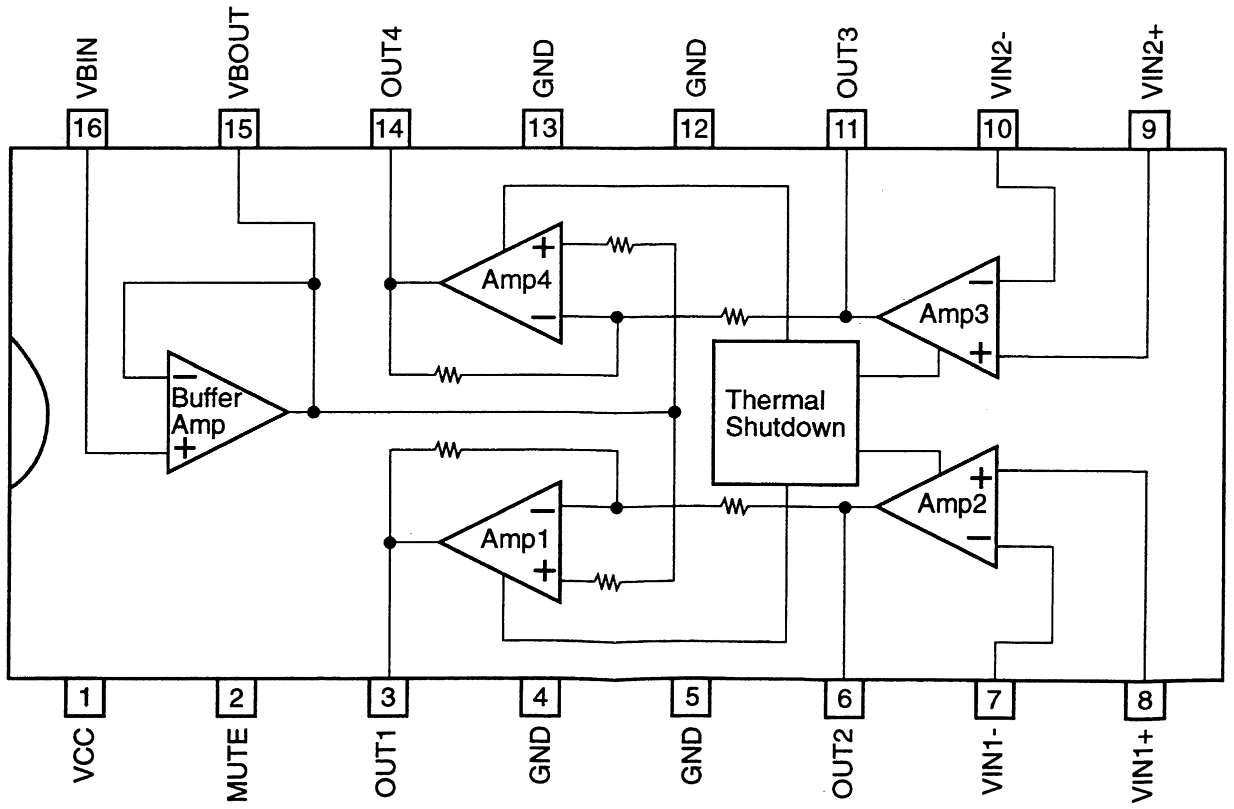
# IC BLOCK DIAGRAM

## IC, NJM2244L

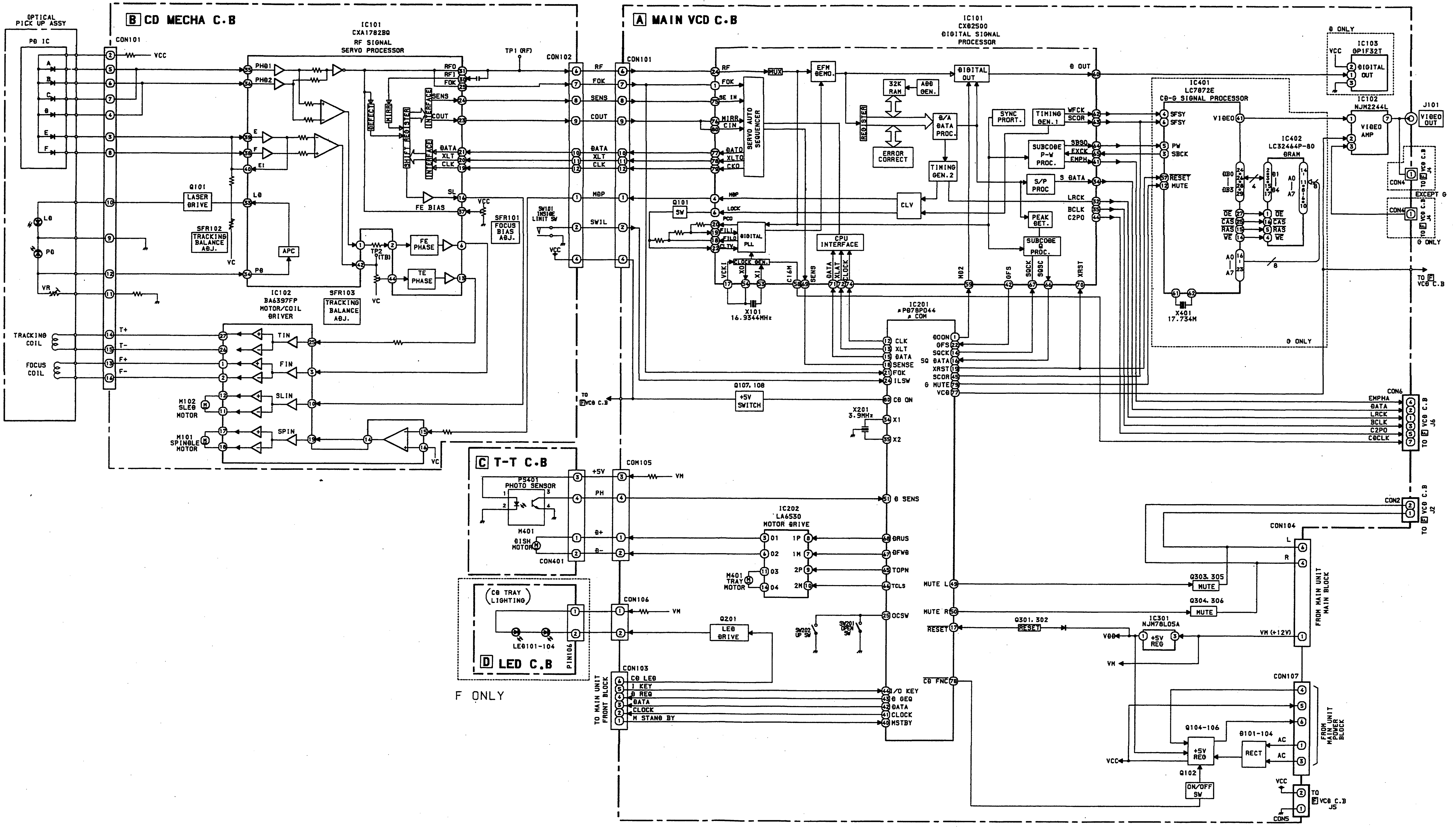

GND
Vout
V+
Vin3 (Mute)
⑧
⑦
⑥
⑤
75 Ω
DRIVER
B
I
A
S
①
②
③
④
Vin1
SW1
Vin2
SW2

| SW1 | SW2 | OUTPUT SIGNAL |
|---|---|---|
| L | L | Vin1 |
| H | L | Vin2 |
| L/H | H | Vin3 |

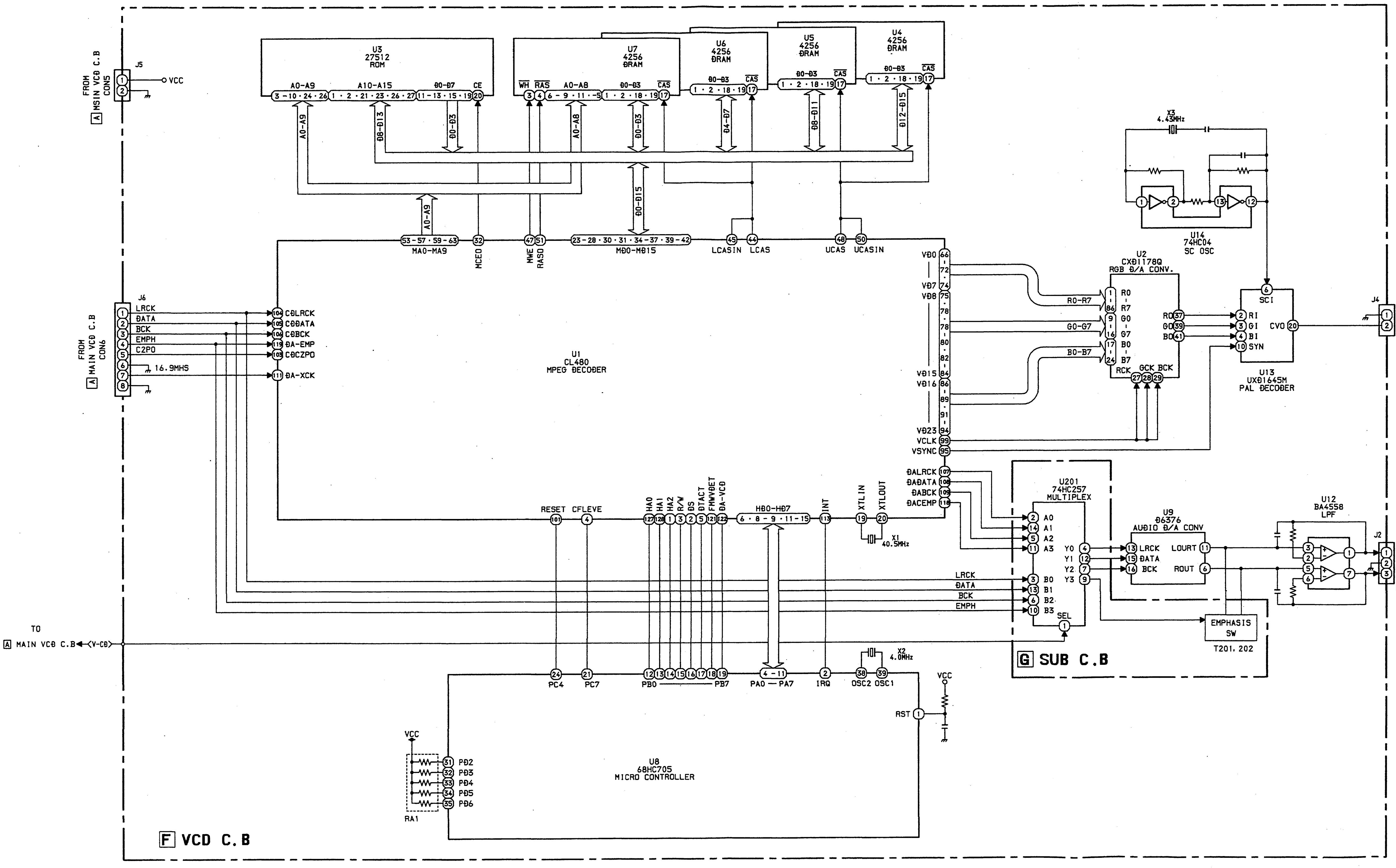
## IC, LA6530


VBIN
VBOUT
OUT4
GND
GND
OUT3
VIN2-
VIN2+
16
15
14
13
12
11
10
9
Amp4
Amp3
Buffer Amp
Thermal Shutdown
Amp1
Amp2
1
2
3
4
5
6
7
8
VCC
MUTE
OUT1
GND
GND
OUT2
VIN1-
VIN1+

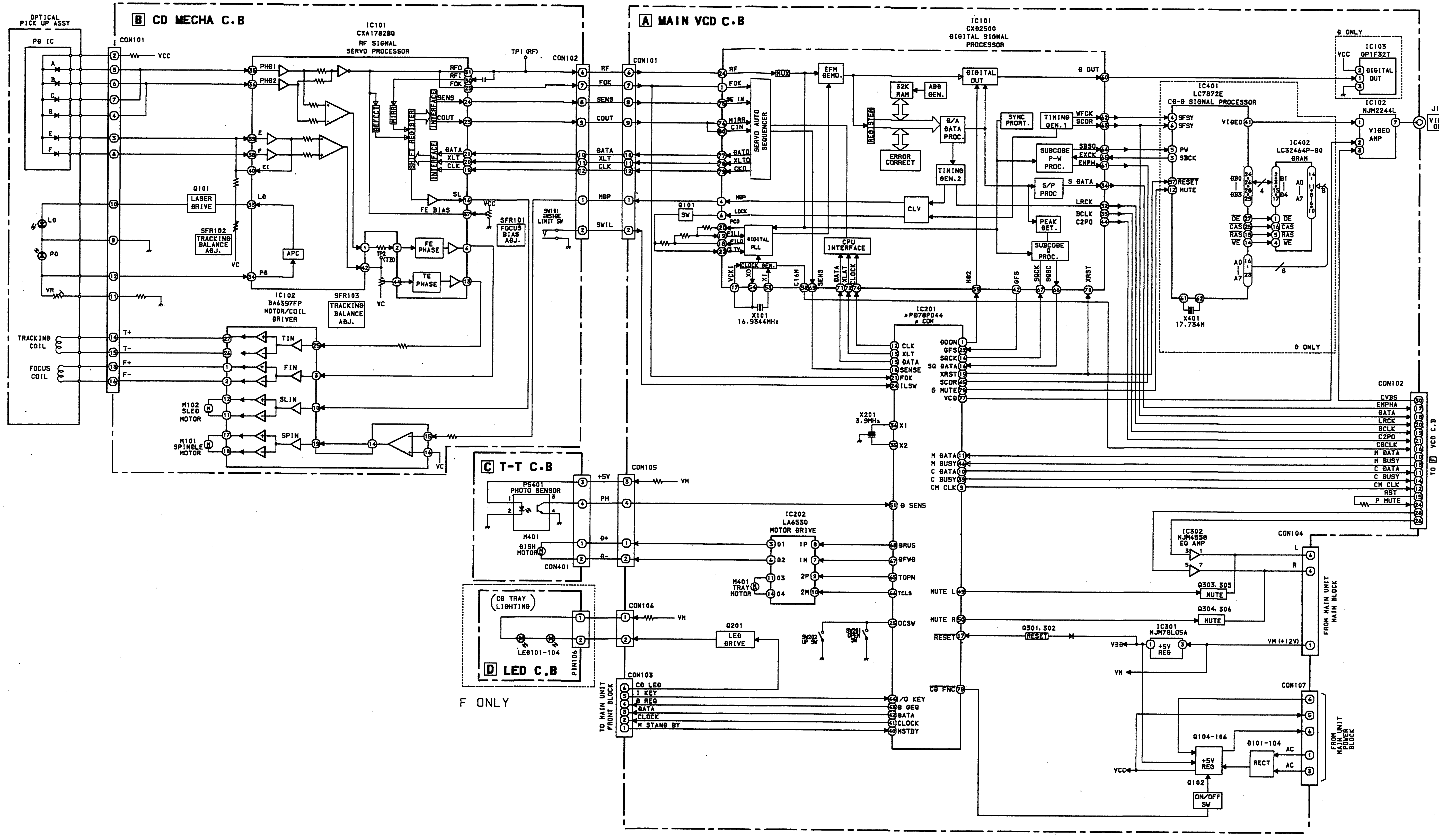
## BLOCK DIAGRAM-1 (V3L: MAIN VCD ／ CD MECHA)


OPTICAL PICK UP ASSY
PD IC
B CD MECHA C.B
CON101
VCC
IC101
CXA1782BQ
RF SIGNAL SERVO PROCESSOR
TP1 (RF)
CON102
PHD1
PHD2
RFO
RFI
FOK
SENS
COUT
DATA
XLT
CLK
SL
FE BIAS
DEFECT
MIRR
SHIFT REGISTER
INTERFACE
Q101
LASER DRIVE
LD
PD
APC
SFR102
TRACKING BALANCE ADJ.
SFR101
FOCUS BIAS ADJ.
SFR103
TRACKING BALANCE ADJ.
TP2 (TB)
FE PHASE
TE PHASE
IC102
BA6397FP
MOTOR/COIL DRIVER
TRACKING COIL
FOCUS COIL
TIN
FIN
SLIN
SPIN
M102 SLED MOTOR
M101 SPINDLE MOTOR
T+
T-
F+
F-
VR
VC
SW101 INSIDE LIMIT SW
MDP
SWIL
TO E VCD C.B
A MAIN VCD C.B
IC101
CXD2500
DIGITAL SIGNAL PROCESSOR
MUX
EFM DEMO.
DIGITAL OUT
D OUT
32K RAM
ADD GEN.
ERROR CORRECT
D/A DATA PROC.
TIMING GEN.2
SYNC PROTT.
TIMING GEN.1
SUBCODE P-W PROC.
S/P PROC
PEAK DET.
SUBCODE Q PROC.
CLV
SERVO AUTO SEQUENCER
CPU INTERFACE
DIGITAL PLL
CLOCK GEN.
REGISTER
Q101 SW
LOCK
X101 16.9344MHz
IC201
μPD78P044 μ COM
CLK
XLT
DATA
SENSE
FOK
ILSW
SQ DATA
XRST
SCOR
G MUTE
VCD
DOON
GFS
SQCK
CD ON
Q107, 108 +5V SWITCH
X201 3.9MHz
X1
X2
D SENS
IC202 LA6530 MOTOR DRIVE
DRUS
DFWD
TOPN
TCLS
M401 TRAY MOTOR
OCSW
SW202 UP SW
SW201 OPEN SW
Q201 LED DRIVE
MUTE L
MUTE R
RESET
CD FNC
I/O KEY
D REQ
CLOCK
MSTBY
C T-T C.B
PS401 PHOTO SENSOR
M401 DISH MOTOR
CON401
CON105
+5V
PH
D+
D-
VM
CON106
CD TRAY LIGHTING
LED101-104
D LED C.B
PIN106
F ONLY
CON103
CD LED
J KEY
D REQ
DATA
CLOCK
M STAND BY
TO MAIN UNIT FRONT BLOCK
D ONLY
IC103 GP1F32T DIGITAL OUT
IC401 LC7872E CD-G SIGNAL PROCESSOR
SFSY
PW
SBCK
RESET
MUTE
VIDEO
X401 17.734M
IC402 LC32464P-80 DRAM
OE CAS RAS WE
A0 A7
IC102 NJM2244L VIDEO AMP
J101 VIDEO OUT
CON4 TO F VCD C.B J4
EXCEPT G
G ONLY
TO F VCD C.B
WFCK SCOR SBSO EXCK EMPH S DATA LRCK BCLK C2PO
CON6
EMPHA
DATA
LRCK
BCLK
C2PO
CDCLK
TO F VCD C.B J6
CON2 TO F VCD C.B J2
CON104
L
R
Q303, 305 MUTE
Q304, 306 MUTE
FROM MAIN UNIT MAIN BLOCK
Q301, 302 RESET
IC301 NJM78L05A
+5V REG
VM (+12V)
VDD
CON107
Q104-106
D101-104
RECT
AC
+5V REG
Q102 ON/OFF SW
VCC
FROM MAIN UNIT POWER BLOCK
TO F VCD C.B J5
CON5

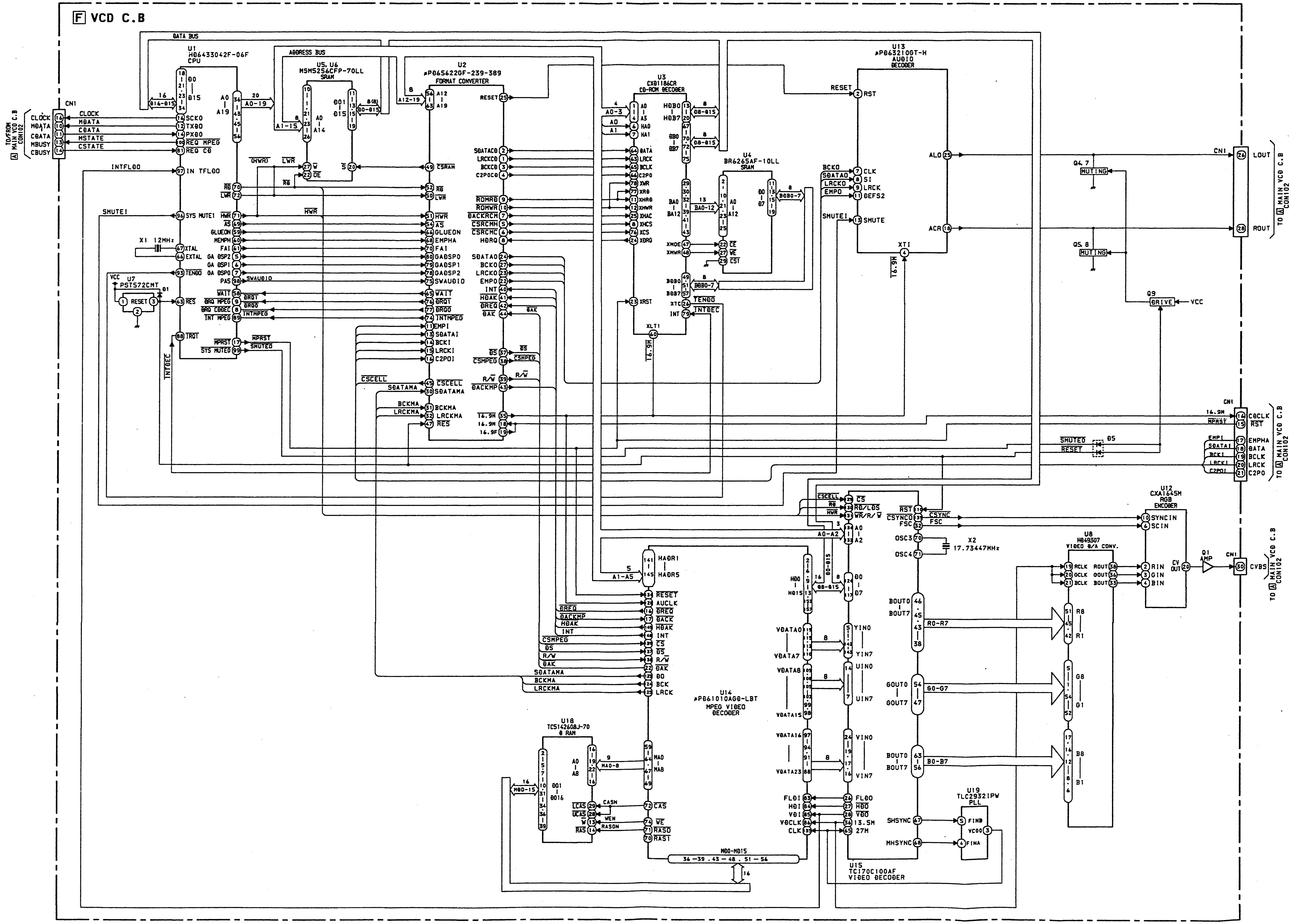
# BLOCK DIAGRAM-2 (V3L: VCD)


FROM A MSIN VCD C.B CON5
J5
VCC
U3
27512
ROM
A0-A9
A10-A15
D0-D7
CE
U7
4256
DRAM
WH
RAS
A0-A8
D0-D3
CAS
U6
4256
DRAM
D4-D7
U5
4256
DRAM
D8-D11
U4
4256
DRAM
D12-D15
D8-D13
D0-D15
MA0-MA9
MCEO
MWE
RASO
MD0-MD15
LCASIN
LCAS
UCAS
UCASIN
X3
4.43MHz
U14
74HC04
SC OSC
FROM A MAIN VCD C.B CON6
J6
LRCK
DATA
BCK
EMPH
C2PO
16.9MHS
CDLRCK
CDDATA
CDBCK
DA-EMP
CDCZPO
DA-XCK
U1
CL480
MPEG DECODER
VD0
VD7
VD8
VD15
VD16
VD23
VCLK
VSYNC
U2
CXD1178Q
RGB D/A CONV.
R0-R7
G0-G7
B0-B7
RCK
GCK
BCK
SCI
RI
GI
BI
SYN
CVO
U13
UXD1645M
PAL DECODER
J4
TO A MAIN VCD C.B CON4
DALRCK
DADATA
DABCK
DACEMP
RESET
CFLEVE
HA0
HA1
HA2
R/W
DS
DTACT
FMWVDET
DA-VCD
HD0-HD7
INT
XTLIN
XTLOUT
X1
40.5MHz
U201
74HC257
MULTIPLEX
A0
A1
A2
A3
B0
B1
B2
B3
Y0
Y1
Y2
Y3
SEL
U9
D6376
AUDIO D/A CONV
LRCK
DATA
BCK
LOURT
ROUT
U12
BA4558
LPF
J2
TO A MAIN VCD C.B CON2
EMPHASIS SW
T201, 202
G SUB C.B
TO
A MAIN VCD C.B ◄(V-CD)
PC4
PC7
PB0
PB7
PA0 — PA7
IRQ
OSC2
OSC1
X2
4.0MHz
VCC
RST
VCC
PD2
PD3
PD4
PD5
PD6
RA1
U8
68HC705
MICRO CONTROLLER
F VCD C.B

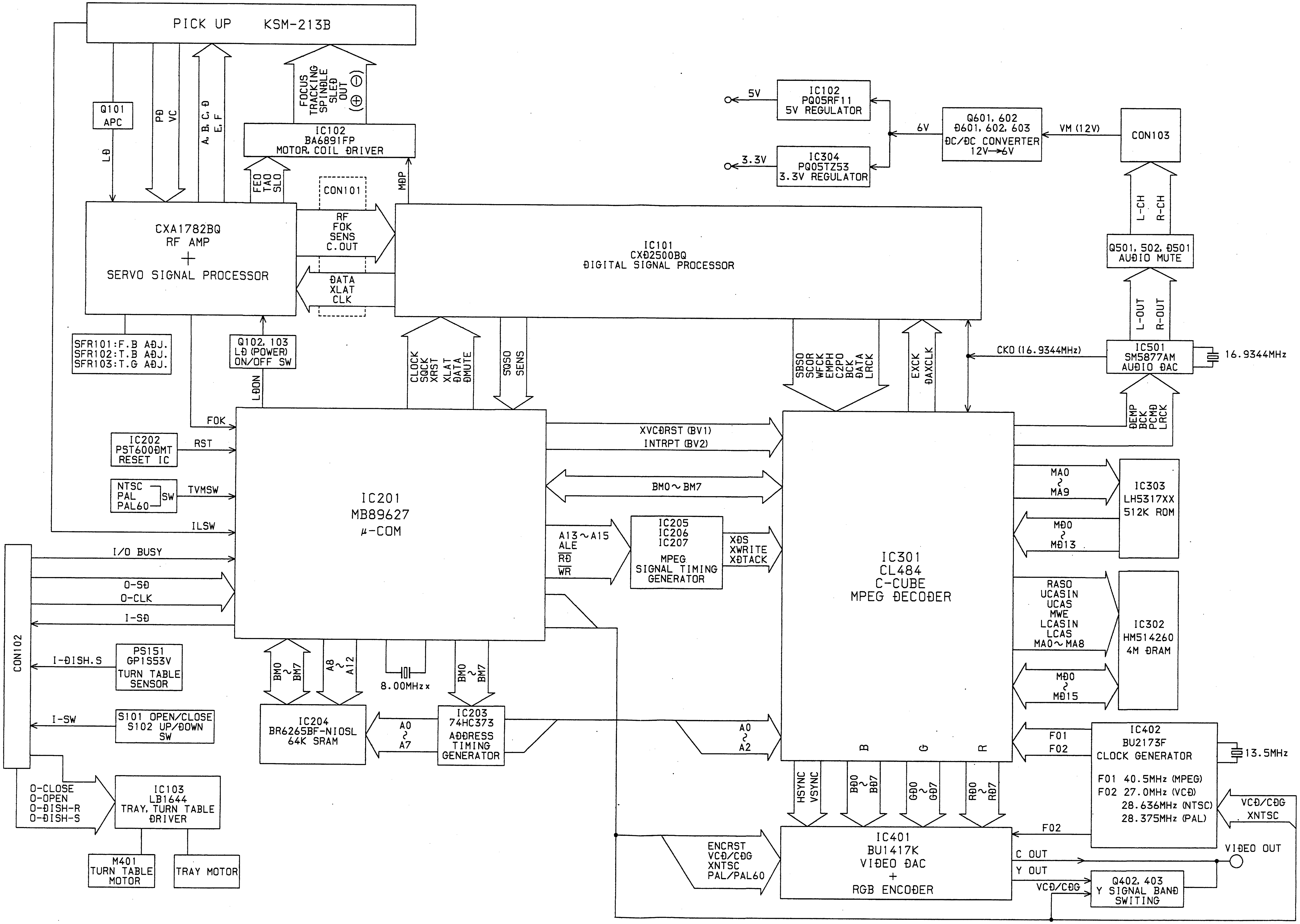
# BLOCK DIAGRAM-3 (V4L: MAIN VCD ／ CD MECHA)

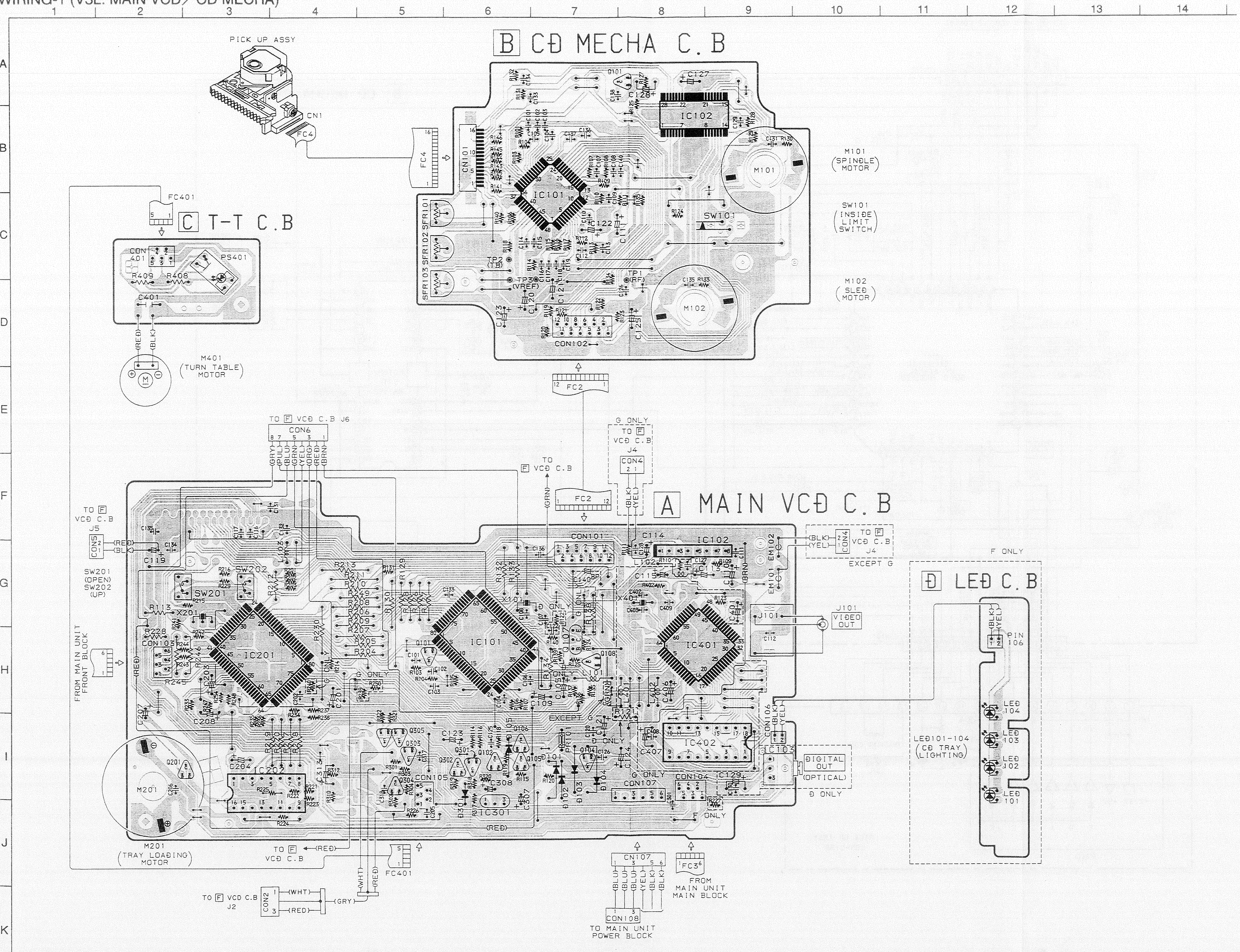

OPTICAL PICK UP ASSY
PD IC
B CD MECHA C.B
CON101
IC101
CXA1782BQ
RF SIGNAL
SERVO PROCESSOR
TP1 (RF)
CON102
Q101
LASER DRIVE
SFR102
TRACKING BALANCE ADJ.
APC
FE BIAS
SFR101
FOCUS BIAS ADJ.
SW101
INSIDE LIMIT SW
FE PHASE
TE PHASE
IC102
BA6397FP
MOTOR/COIL DRIVER
SFR103
TRACKING BALANCE ADJ.
TRACKING COIL
FOCUS COIL
M102
SLED MOTOR
M101
SPINDLE MOTOR
A MAIN VCD C.B
IC101
CXD2500
DIGITAL SIGNAL PROCESSOR
EFM DEMO.
MUX
SERVO AUTO SEQUENCER
32K RAM
ADD GEN.
D/A DATA PROC.
ERROR CORRECT
TIMING GEN.2
DIGITAL OUT
SYNC PRORT.
TIMING GEN.1
SUBCODE P-W PROC.
S/P PROC
PEAK DET.
SUBCODE Q PROC.
CLV
DIGITAL PLL
CLOCK GEN.
CPU INTERFACE
X101
16.9344MHz
IC201
μPD78P044
μ COM
X201
3.9MHz
IC401
LC7872E
CD-G SIGNAL PROCESSOR
IC402
LC32464P-80
DRAM
X401
17.734M
G ONLY
IC103
GP1F32T
DIGITAL OUT
IC102
NJM2244L
VIDEO AMP
J101
VIDEO OUT
CON102
TO E VCD C.B
C T-T C.B
PS401
PHOTO SENSOR
M401
DISH MOTOR
CON401
CON105
IC202
LA6530
MOTOR DRIVE
M401
TRAY MOTOR
CON106
(CD TRAY LIGHTING)
LED101-104
PIN106
D LED C.B
F ONLY
Q201
LED DRIVE
SW202 UP SW
SW201 OPEN SW
CON103
TO MAIN UNIT FRONT BLOCK
CD LED
I KEY
D REQ
DATA
CLOCK
M STAND BY
IC302
NJM4558
EQ AMP
CON104
Q303, 305
MUTE
Q304, 306
MUTE
Q301, 302
RESET
IC301
NJM78L05A
+5V REG
FROM MAIN UNIT MAIN BLOCK
CON107
D104-106
+5V REG
D101-104
RECT
Q102
ON/OFF SW
FROM MAIN UNIT POWER BLOCK

# BLOCK DIAGRAM-4 (V4L: VCD)

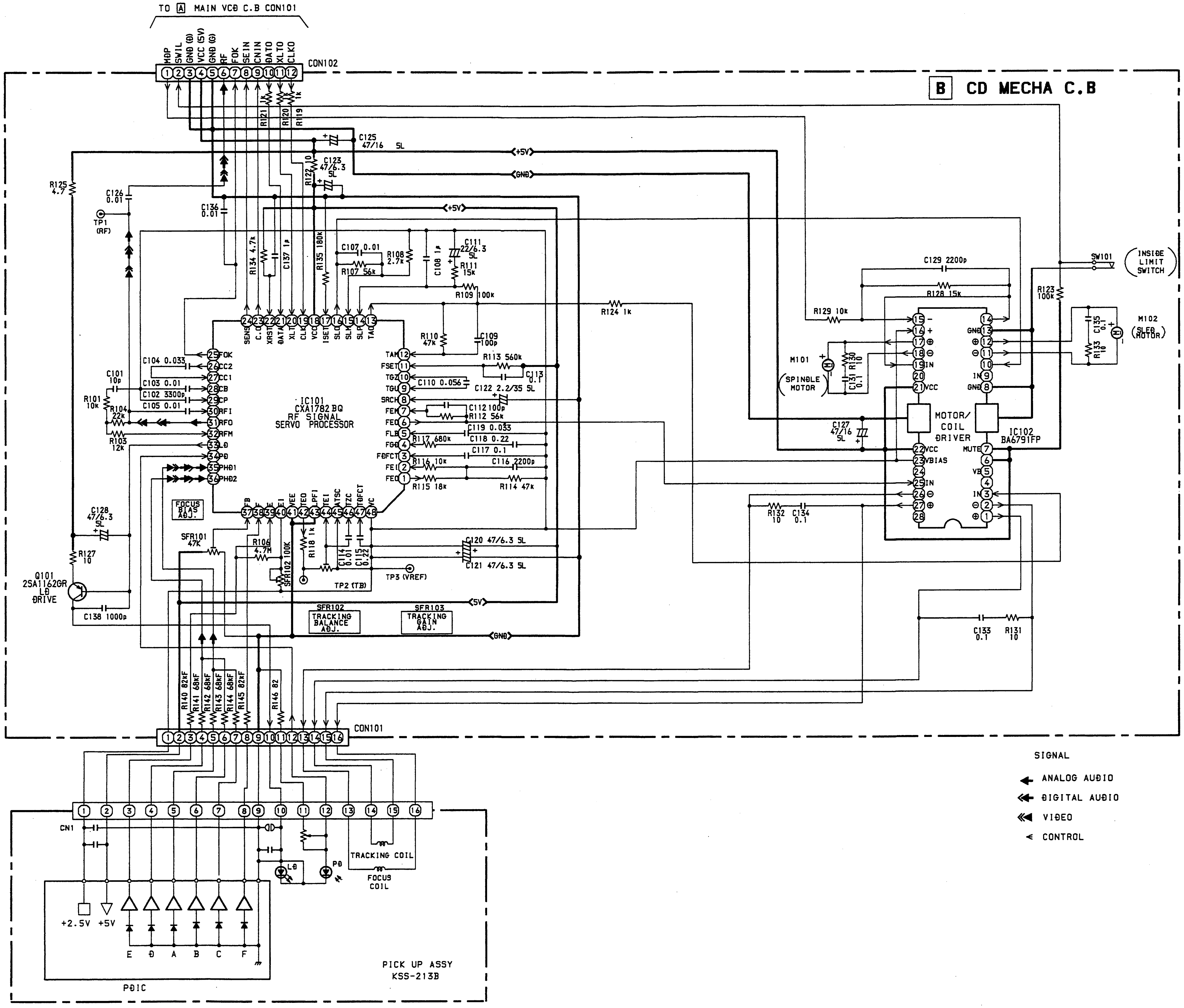

F VCD C.B
DATA BUS
ADDRESS BUS
U1
HD6433042F-06F
CPU
U5, U6
MSM5256CFP-70LL
SRAM
U2
μPD65622GF-239-389
FORMAT CONVERTER
U3
CXD1186CR
CD-ROM DECODER
U4
BR6265AF-10LL
SRAM
U13
μPD63210GT-H
AUDIO DECODER
U7
PST572CMT
X1 12MHz
CN1
TO/FROM A MAIN VCD C.B CON102
CLOCK
MDATA
CDATA
MSTATE
CSTATE
MBUSY
CBUSY
INTFLDO
SMUTE1
SCKO
TXDO
PXDO
REQ MPEG
REQ CD
IN TFLDO
SYS MUTE1
XTAL
EXTAL
RES
IRQ1
MPRST
SYS MUTED
SMUTED
INTDEC
VCC
RESET
D0–D15
A0–A19
A1–A15
A0–A14
A12–A19
A12
A19
RESET
SDATACD
LRCKCD
BCKCD
C2POCD
ROMRD
ROMWR
DACKRCM
CSRCMH
CSRCMC
HDRQ
SDATAO
BCKO
LRCKO
EMPO
INT
HDAK
DREQ
DAK
DS
CSMPEG
R/W
DACKMP
16.9M
16.9F
CSRAM
RD
LWR
HWR
AS
GLUEON
EMPHA
FAI
GADSP0
GADSP1
GADSP2
SWAUDIO
WAIT
DRQ1
DRQ0
INTMPEG
EMPI
SDATAI
BCKI
LRCKI
C2POI
CSCELL
SDATAMA
BCKMA
LRCKMA
RES
A0–A3
HDB0–HDB7
DB0–DB7
HA0
HA1
DATA
LRCK
BCLK
C2PO
XWR
XRD
XHRD
XHWR
XHAC
XHCS
XCS
XDRQ
XRST
XLT1
BA0–BA12
XMOE
XMWR
BDB0–BDB7
TENDO
INTDEC
XTC
CE
WE
CST
RST
CLK
SI
LRCK
DEFS2
SMUTE
ALO
ACR
XTI
16.9M
Q4, 7
MUTING
Q5, 8
MUTING
Q9
DRIVE
VCC
CN1
LOUT
ROUT
TO A MAIN VCD C.B CON102
CDCLK
RST
EMPHA
DATA
BCLK
LRCK
C2PO
D5
U12
CXA1645M
RGB ENCODER
SYNCIN
SCIN
RIN
GIN
BIN
CV OUT
Q1
AMP
CVBS
U8
HD49307
VIDEO D/A CONV.
RCLK
GCLK
BCLK
ROUT
GOUT
BOUT
R8–R1
G8–G1
B8–B1
X2
17.73447MHz
CS
RD/LDS
WR/R/W
A0–A2
CSYNCO
FSC
CSYNC
OSC3
OSC4
ROUT0–ROUT7
R0–R7
GOUT0–GOUT7
G0–G7
BOUT0–BOUT7
B0–B7
SHSYNC
MHSYNC
U19
TLC2932IPW
PLL
FINB
FINA
VCOO
U15
TC170C100AF
VIDEO DECODER
YIN0–YIN7
UIN0–UIN7
VIN0–VIN7
FLDO
HDO
VDO
13.5M
27M
U14
μPD61010AGD-LBT
MPEG VIDEO DECODER
HADR1–HADR5
A1–A5
HD0–HD15
D0–D15
RESET
AUCLK
DREQ
DACK
HDAK
INT
CS
DS
R/W
DAK
DD
BCK
LRCK
VDATA0–VDATA23
FLDI
HDI
VDI
VDCLK
CLK
MAD–MA8
CAS
WE
RASO
RAST
MD0–MD15
36–39, 43–48, 51–56
U18
TC5142608J-70
D RAM
A0–A8
DD1–DD16
LCAS
UCAS
RAS
CASN
WEN
RASON
MAD-8
MD0-15

# BLOCK DIAGRAM-5 (V5)

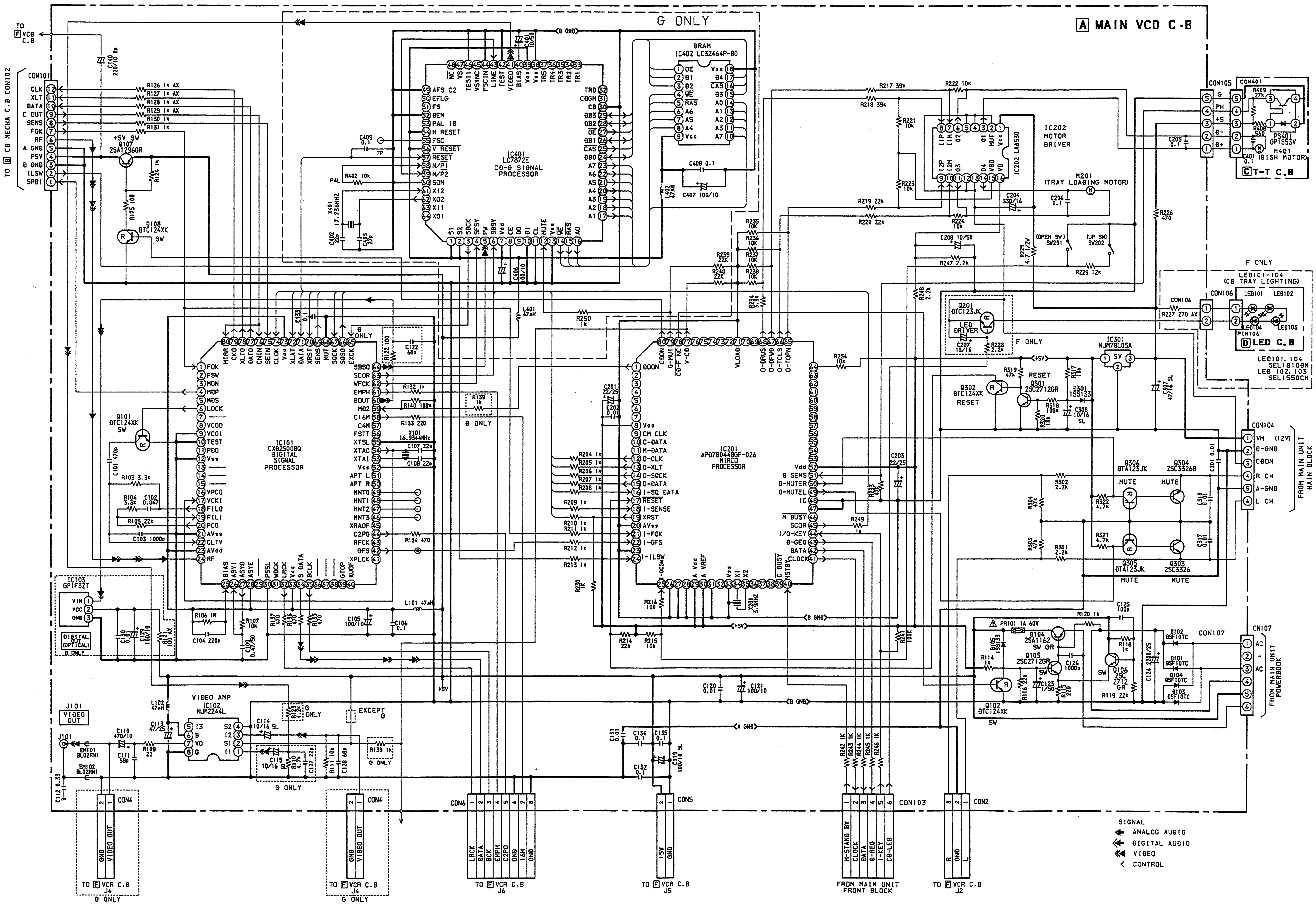

PICK UP KSM-213B
Q101
APC
LD
PD
VC
A, B, C, D
E, F
FOCUS
TRACKING
SPINDLE
SLED
OUT
(⊕ ⊖)
IC102
BA6891FP
MOTOR, COIL DRIVER
FEO
TAO
SLO
MDP
CON101
CXA1782BQ
RF AMP
+
SERVO SIGNAL PROCESSOR
RF
FOK
SENS
C.OUT
DATA
XLAT
CLK
IC101
CXD2500BQ
DIGITAL SIGNAL PROCESSOR
5V
IC102
PQ05RF11
5V REGULATOR
3.3V
IC304
PQ05TZ53
3.3V REGULATOR
6V
Q601, 602
D601, 602, 603
DC/DC CONVERTER
12V→6V
VM (12V)
CON103
L-CH
R-CH
Q501, 502, D501
AUDIO MUTE
L-OUT
R-OUT
IC501
SM5877AM
AUDIO DAC
16.9344MHz
CKO (16.9344MHz)
SFR101:F.B ADJ.
SFR102:T.B ADJ.
SFR103:T.G ADJ.
Q102, 103
LD (POWER)
ON/OFF SW
LDON
CLOCK
SQCK
XRST
XLAT
DATA
DMUTE
SQSO
SENS
SBSO
SCOR
WFCK
EMPH
C2PO
BCK
DATA
LRCK
EXCK
DAXCLK
DEMP
BCK
PCMD
LRCK
FOK
IC202
PST600DMT
RESET IC
RST
NTSC
PAL
PAL60
SW
TVMSW
ILSW
IC201
MB89627
µ-COM
XVCDRST (BV1)
INTRPT (BV2)
BM0～BM7
A13～A15
ALE
RD
WR
IC205
IC206
IC207
MPEG
SIGNAL TIMING
GENERATOR
XDS
XWRITE
XDTACK
IC301
CL484
C-CUBE
MPEG DECODER
MA0
～
MA9
IC303
LH5317XX
512K ROM
MD0
～
MD13
RASO
UCASIN
UCAS
MWE
LCASIN
LCAS
MA0～MA8
IC302
HM514260
4M DRAM
MD0
～
MD15
I/O BUSY
O-SD
O-CLK
I-SD
CON102
I-DISH.S
PS151
GP1S53V
TURN TABLE
SENSOR
I-SW
S101 OPEN/CLOSE
S102 UP/DOWN
SW
BM0
～
BM7
A8
～
A12
8.00MHz x
BM0
～
BM7
IC204
BR6265BF-NIOSL
64K SRAM
A0
～
A7
IC203
74HC373
ADDRESS
TIMING
GENERATOR
A0
～
A2
B
G
R
F01
F02
IC402
BU2173F
CLOCK GENERATOR
F01 40.5MHz (MPEG)
F02 27.0MHz (VCD)
28.636MHz (NTSC)
28.375MHz (PAL)
13.5MHz
O-CLOSE
O-OPEN
O-DISH-R
O-DISH-S
IC103
LB1644
TRAY, TURN TABLE
DRIVER
M401
TURN TABLE
MOTOR
TRAY MOTOR
HSYNC
VSYNC
BD0
～
BD7
GD0
～
GD7
RD0
～
RD7
ENCRST
VCD/CDG
XNTSC
PAL/PAL60
IC401
BU1417K
VIDEO DAC
+
RGB ENCODER
F02
C OUT
Y OUT
VCD/CDG
Q402, 403
Y SIGNAL BAND
SWITING
VCD/CDG
XNTSC
VIDEO OUT


PICK UP ASSY
CN1
FC4
B CD MECHA C.B
CN101
IC101
IC102
M101 (SPINDLE MOTOR)
SW101 (INSIDE LIMIT SWITCH)
M102 (SLED MOTOR)
SFR101
SFR102
SFR103
TP2 (TE)
TP3 (VREF)
TP1 (RF)
CON102
FC2
FC401
C T-T C.B
CON401
PS401
R409
R408
C401
(RED)
(BLK)
M401 (TURN TABLE MOTOR)
TO F VCD C.B J6
CON6
(GRY) (PUL) (BLU) (GRN) (YEL) (ORG) (RED) (BRN)
TO F VCD C.B
G ONLY
TO F VCD C.B J4
CON4
(GRN)
(BLK) (YEL)
A MAIN VCD C.B
TO F VCD C.B J5
CON5
SW201 (OPEN)
SW202 (UP)
FROM MAIN UNIT FRONT BLOCK
CON103
IC201
IC101
IC401
IC402
IC202
IC301
CON101
CON104
CON105
CON106
CON107
IC103
X201
X401
J101
VIDEO OUT
DIGITAL OUT (OPTICAL)
D ONLY
EXCEPT G
F ONLY
TO F VCD C.B J4 EXCEPT G
M201 (TRAY LOADING MOTOR)
TO F VCD C.B
FC401
TO F VCD C.B J2
CON2
(WHT)
(RED)
(GRY)
CN107
(BLU) (BLU) (BLU) (YEL) (BLK) (BLK)
CON108
TO MAIN UNIT POWER BLOCK
FC3
FROM MAIN UNIT MAIN BLOCK
D LED C.B
PIN 106
LED 104
LED 103
LED 102
LED 101
LED101-104 (CD TRAY LIGHTING)

# CHEMATIC DIAGRAM-1 (V3L: CD MECHA)

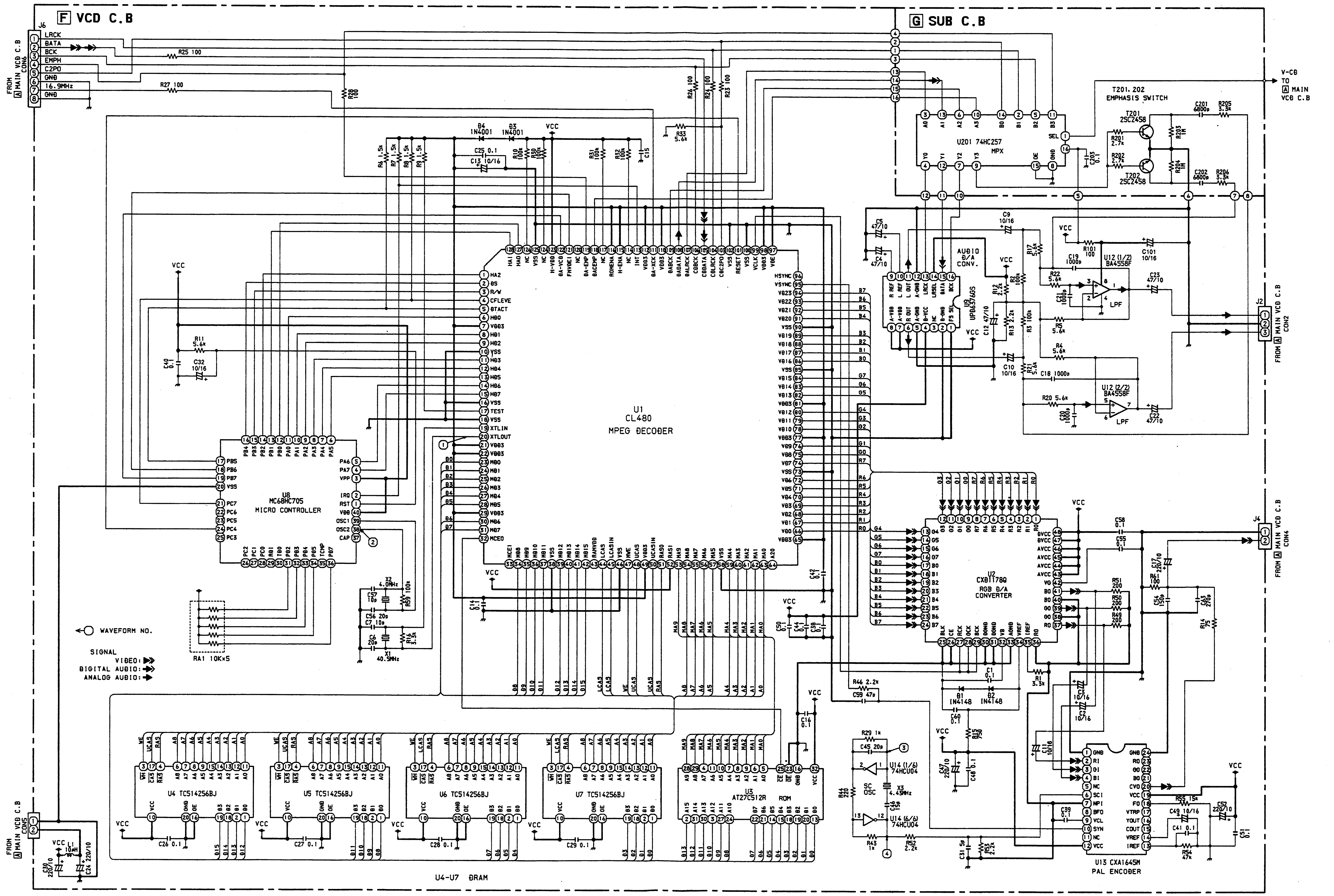

TO A MAIN VCD C.B CON101
MDP
SWIL
GND (D)
VCC (5V)
GND (G)
RF
FOK
SEIN
CNIN
DATO
XLTO
CLKO
CON102
B CD MECHA C.B
R121 1k
R120 1k
R119 1k
C125 47/16 5L
+5V
GND
R122 10
C123 47/6.3 5L
R125 4.7
C126 0.01
TP1 (RF)
C136 0.01
R134 4.7k
C137 1μ
R135 180k
C107 0.01
R107 56k
R108 2.7k
C108 1μ
C111 22/6.3 5L
R111 15k
R109 100k
R124 1k
C129 2200p
R128 15k
R129 10k
R123 100k
SW101
INSIDE LIMIT SWITCH
M102 (SLED MOTOR)
C135 0.1
R133 10
M101
SPINDLE MOTOR
C131 0.1
R130 10
C127 47/16 5L
MOTOR/ COIL DRIVER
IC102 BA6791FP
IC101 CXA1782BQ RF SIGNAL SERVO PROCESSOR
SENS
C.OUT
XRST
DATA
XLT
CLK
VCC
ISET
SLO
SLM
SLP
TAO
TAM
FSET
TGZ
TGU
SRCH
FEM
FEO
FLB
FGD
FDFCT
FEI
FEO
FOK
CC2
CC1
CB
CP
RFI
RFO
RFM
LD
PD
PHD1
PHD2
FB
DE
EI
VEE
TEO
LPFI
TEI
ATSC
TZC
TDFCT
VC
R110 47k
C109 100p
R113 560k
C113 0.1
C110 0.056
C122 2.2/35 5L
C112 100p
R112 56k
C119 0.033
R117 680k
C118 0.22
C117 0.1
R116 10k
C116 2200p
R115 18k
R114 47k
C104 0.033
C101 10p
C103 0.01
C102 3300p
C105 0.01
R101 10k
R104 22k
R103 12k
C128 47/6.3 5L
R127 10
Q101 2SA1162GR LD DRIVE
C138 1000p
FOCUS BIAS ADJ.
SFR101 47K
R106 4.7M
SFR102 100K
R118 1k
C114 0.01
C115 0.22
TP2 (TE)
TP3 (VREF)
C120 47/6.3 5L
C121 47/6.3 5L
SFR102 TRACKING BALANCE ADJ.
SFR103 TRACKING GAIN ADJ.
5V
R132 10
C134 0.1
C133 0.1
R131 10
VCC
VBIAS
IN
MUTE
VB
R140 82kF
R141 68kF
R142 68kF
R143 68kF
R144 68kF
R145 82kF
R146 82
CON101
CN1
LD
PD
TRACKING COIL
FOCUS COIL
+2.5V
+5V
E
D
A
B
C
F
PDIC
PICK UP ASSY KSS-213B
SIGNAL
ANALOG AUDIO
DIGITAL AUDIO
VIDEO
CONTROL

## SCHEMATIC DIAGRAM-2 (V3L: MAIN VCD)

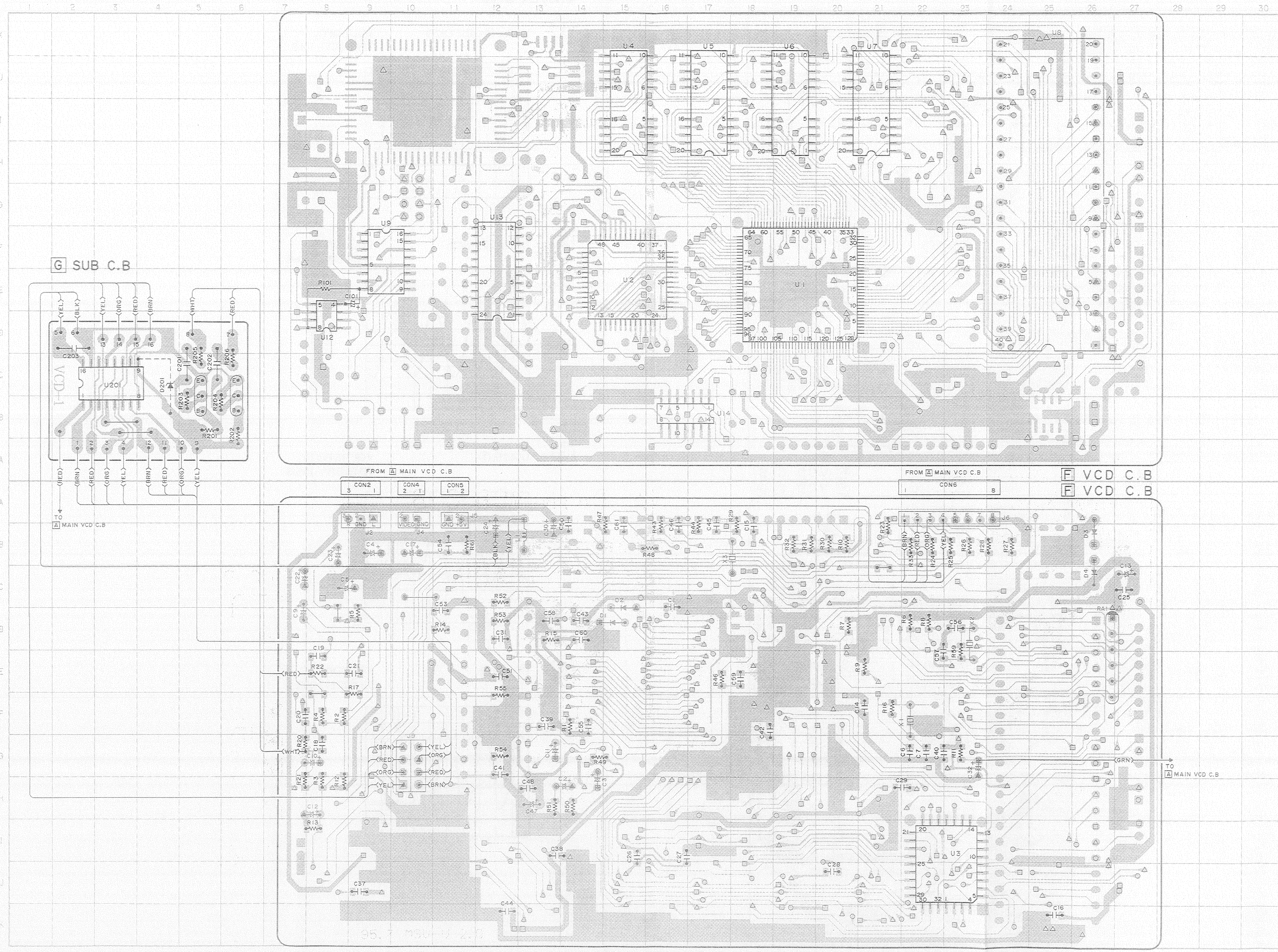


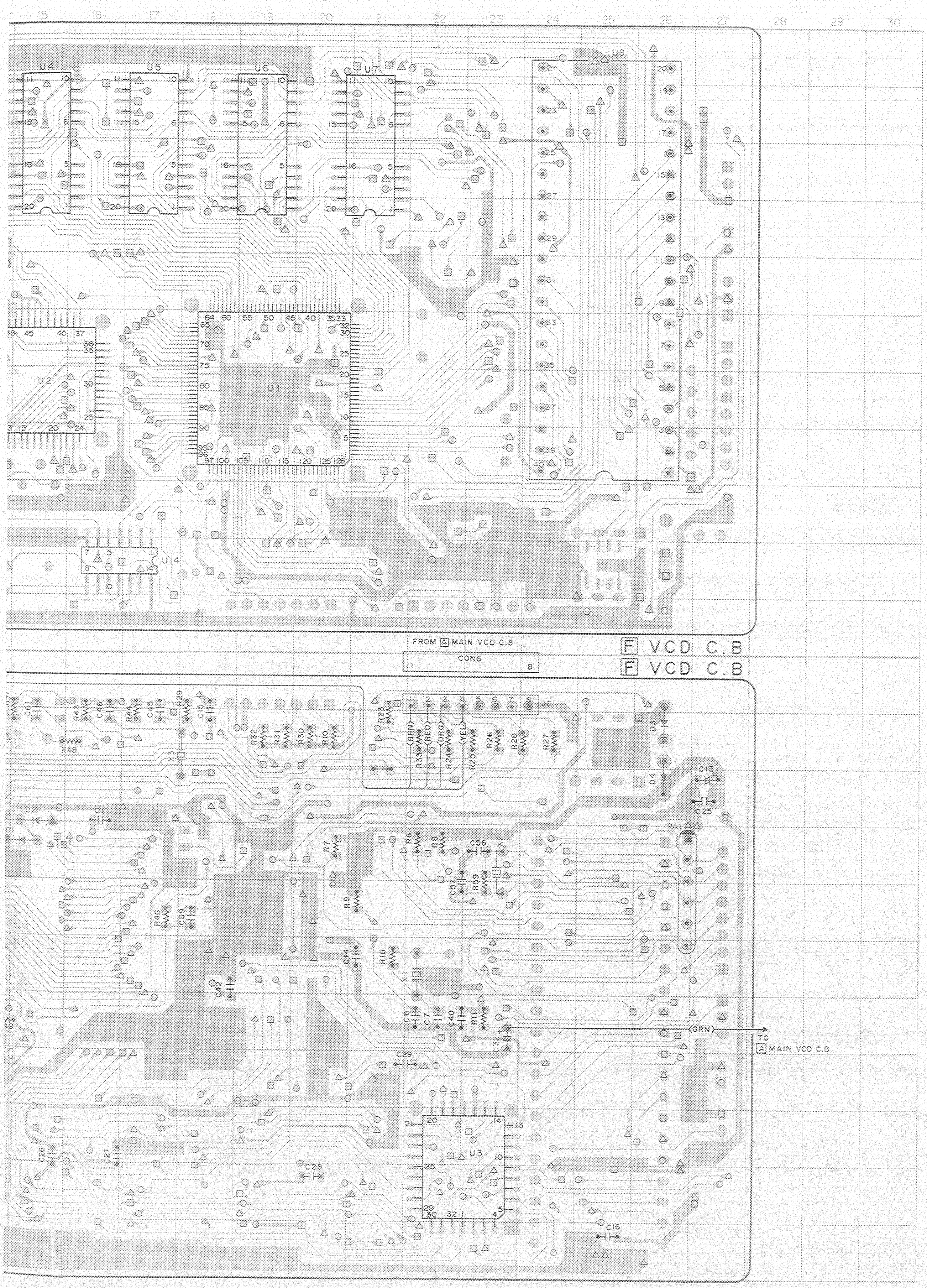
A MAIN VCD C·B
G ONLY
TO F VCD C.B
TO B CD MECHA C.B CON102
CON101
CLK
XLT
DATA
C OUT
SENS
FOK
RF
A GND
P5V
D GND
LSW
SPDL
Q107 2SA1296GR
Q108 DTC124XK
Q101 DTC124XK
IC401 LC7872E CD-G SIGNAL PROCESSOR
IC402 LC32464P-80 DRAM
X401 17.734MHz
IC101 CXD2500BQ DIGITAL SIGNAL PROCESSOR
X101 16.9344MHz
IC201 μPD78044BGF-026 MICRO PROCESSOR
X201 3.9MHz
IC202 LA6530 MOTOR DRIVER
M201 (TRAY LOADING MOTOR)
(OPEN SW) SW201
(UP SW) SW202
Q201 DTC123JK LED DRIVER
IC301 NJM78L05A
Q302 DTC124XK RESET
Q301 2SC2712GR
Q306 DTA123JK MUTE
Q304 2SC3326B MUTE
Q305 DTA123JK MUTE
Q303 2SC3326 MUTE
CON104
VM (12V)
D-GND
CDON
R CH
A-GND
L CH
FROM MAIN UNIT MAIN BLOCK
CON105
CON401
PS401 GP1S53V
M401 (DISH MOTOR)
C T-T C.B
F ONLY
LED101-104 (CD TRAY LIGHTING)
CON106
D LED C.B
LED101, 104 SEL1810DM
LED 102, 103 SEL1550CM
IC103 GP1F32T
DIGITAL OUT (OPTICAL)
D ONLY
VIDEO AMP IC102 NJM2244L
J101 VIDEO OUT
EXCEPT G
G ONLY
PR101 1A 60V
Q104 2SA1162 SW GR
Q105 2SC2712GR
Q106 2SC2712 GR SW
Q102 DTC124XK SW
CON107
CN107
AC
FROM MAIN UNIT POWERBOOK
CON4
GND
VIDEO OUT
TO F VCR C.B J4
G ONLY
CON6
LRCK
DATA
BCK
EMPH
C2PO
16M
GND
TO F VCR C.B J6
CON5
+5V
GND
TO F VCR C.B J5
CON103
M-STAND BY
CLOCK
DATA
D-REQ
I-KEY
CD-LED
FROM MAIN UNIT FRONT BLOCK
CON2
R
GND
L
TO F VCR C.B J2
SIGNAL
ANALOG AUDIO
DIGITAL AUDIO
VIDEO
CONTROL

# SCHEMATIC DIAGRAM-3 (V3L: VCD)


F VCD C.B
G SUB C.B
J6
FROM A MAIN VCD C.B CON6
LRCK
DATA
BCK
EMPH
C2PO
GND
16.9MHz
GND
R25 100
R27 100
R28 100
R26 100
R24 100
R23 100
D4 1N4001
D3 1N4001
VCC
C25 0.1
C13 10/16
R33 5.6k
R6 1.5k
R7 1.5k
R8 1.5k
R9 1.5k
R10 100k
R30 100k
R31 100k
R32 100k
C15
U1
CL480
MPEG DECODER
U8
MC68HC705
MICRO CONTROLLER
R11 5.6k
C40 0.1
C32 10/16
X2 4.0MHz
C57 10p
R59 100k
C56 20p
C7 10p
C6 20p
X1 40.5MHz
R16 3.3k
RA1 10K×5
C14 0.1
C42 0.1
WAVEFORM NO.
SIGNAL
VIDEO:
DIGITAL AUDIO:
ANALOG AUDIO:
U201 74HC257
MPX
SEL
T201, 202
EMPHASIS SWITCH
T201 2SC2458
T202 2SC2458
R201 2.7k
R202 2.7k
R203 1M
R204 1M
C201 6800p
C202 6800p
R205 3.3k
R206 3.3k
C203 0.1
V-CB TO A MAIN VCB C.B
AUDIO D/A CONV.
U9 UPD63760S
C5 47/10
C4 47/10
C9 10/16
C12 47/10
R12 2.2k
R13 2.2k
R2 100k
R3 100k
C10 10/16
R17 5.6k
R21 5.6k
C18 1000p
C19 1000p
R101 100
C101 10/16
R22 5.6k
C21 1000p
U12 (1/2) BA4558F
LPF
C23 47/10
R5 5.6k
R4 5.6k
U12 (2/2) BA4558F
R20 5.6k
C20 1000p
C22 47/10
J2
FROM A MAIN VCD C.B CON2
U2
CXD1178Q
RGB D/A
CONVERTER
C58 0.1
C55 0.1
R51 200
R50 200
R49 200
C17 220/10
R61 100
C54 150p
C63 270p
R14 75
J4
FROM A MAIN VCD C.B CON4
C50 0.1
C44 0.1
C38 0.1
R46 2.2k
C59 47p
C1 0.1
D1 1N4148
D2 1N4148
R1 3.3k
C60 0.1
R15 750
C3 10/16
C2 10/16
C11 10/16
C47 220/10
C48 0.1
R29 1k
C45 20p
U14 (1/6) 74HCU04
SC OSC
X3 4.43MHz
C46 15p
R44 220
U14 (6/6) 74HCU04
R43 1k
R52 2.2k
C31 5p
R53 2.2k
C39 0.1
U13 CXA1645M
PAL ENCODER
R55 15k
C49 10/16
C52 220/10
C41 0.1
R54 47k
C51 0.1
C16 0.1
U4 TC514256BJ
U5 TC514256BJ
U6 TC514256BJ
U7 TC514256BJ
C26 0.1
C27 0.1
C28 0.1
C29 0.1
U3 AT27C512R ROM
U4-U7 DRAM
FROM A MAIN VCD C.B CON5
L1 10μH
C30 220/10
C24 220/10

# WIRING-2 (V3L: VCD)

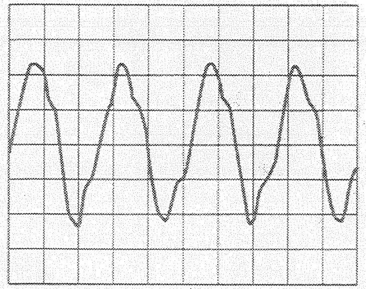

G SUB C.B
VCD-1
U201
F VCD C.B
F VCD C.B
FROM A MAIN VCD C.B
FROM A MAIN VCD C.B
CON2
CON4
CON5
CON6
TO A MAIN VCD C.B
TO A MAIN VCD C.B
U1
U2
U3
U4
U5
U6
U7
U8
U9
U12
U13
U14
(RED)
(BRN)
(YEL)
(ORG)
(BLK)
(WHT)
(GRN)


15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
U4
U5
U6
U7
U8
U1
U2
U14
U3
FROM A MAIN VCD C.B
CON6
F VCD C.B
F VCD C.B
(BRN)
(RED)
(ORG)
(YEL)
(GRN)
TO A MAIN VCD C.B
X3
X1
RA1
D2
D3
D4
C13
C25
C56
C16
C26
C27
C28
C29
R48
R7
R9
R16
R46
C59

# WAVE FORM

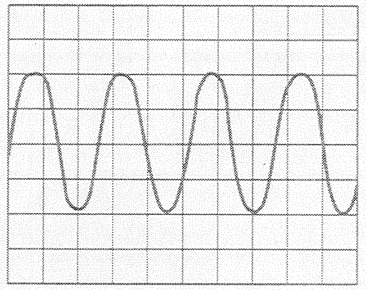
① U1 Pin ⑳ (XLT OUT)

VOLT/DIV: 1V
TIME/DIV: 10nS



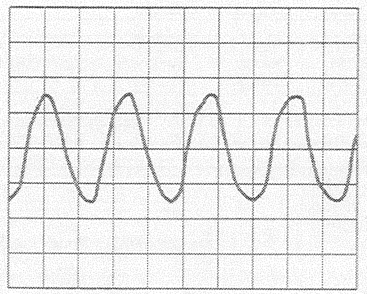
② U8 Pin ㊳ (OSC2)

VOLT/DIV: 1V
TIME/DIV: 100nS



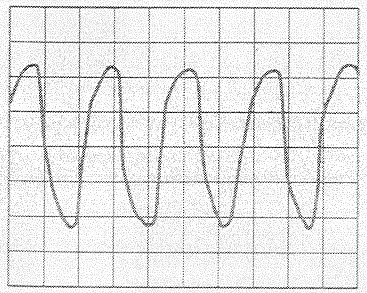
③ U14 Pin ①

VOLT/DIV: 1V
TIME/DIV: 100nS

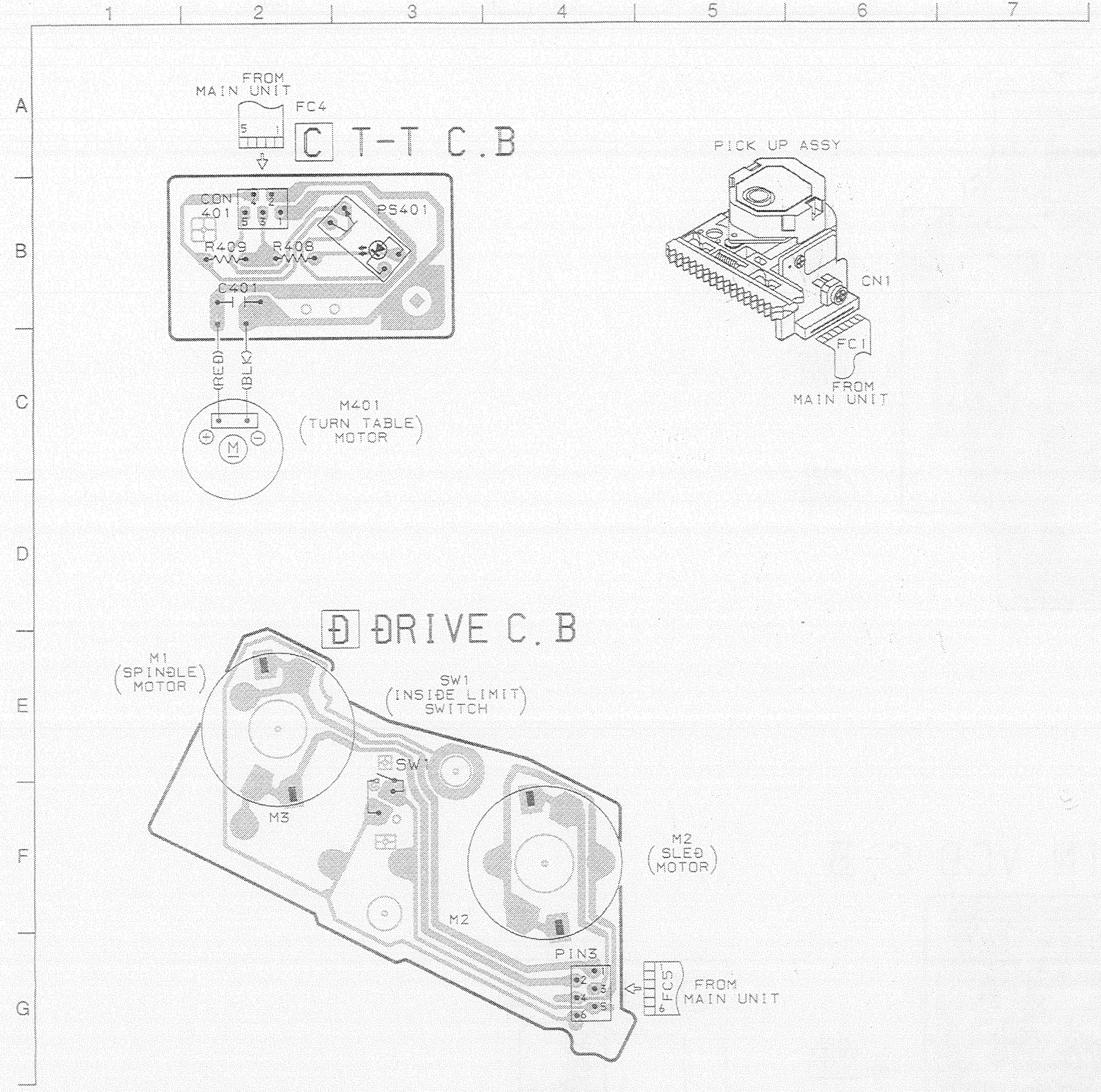


④ U14 Pin ⑫

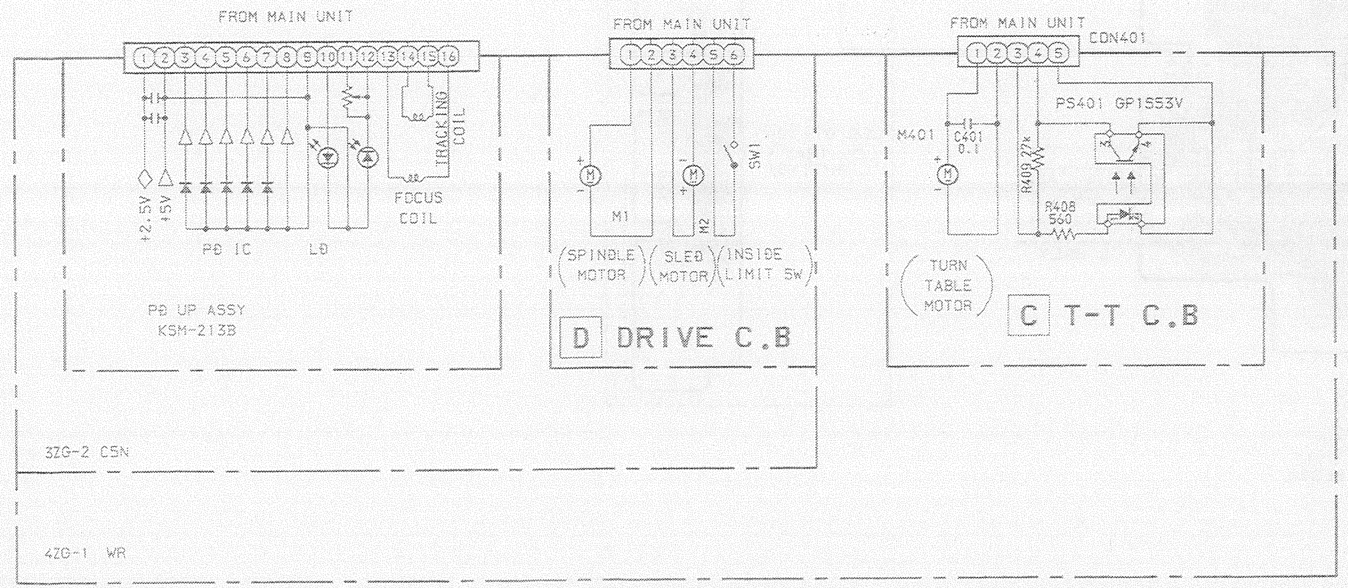
VOLT/DIV: 1V
TIME/DIV: 100nS



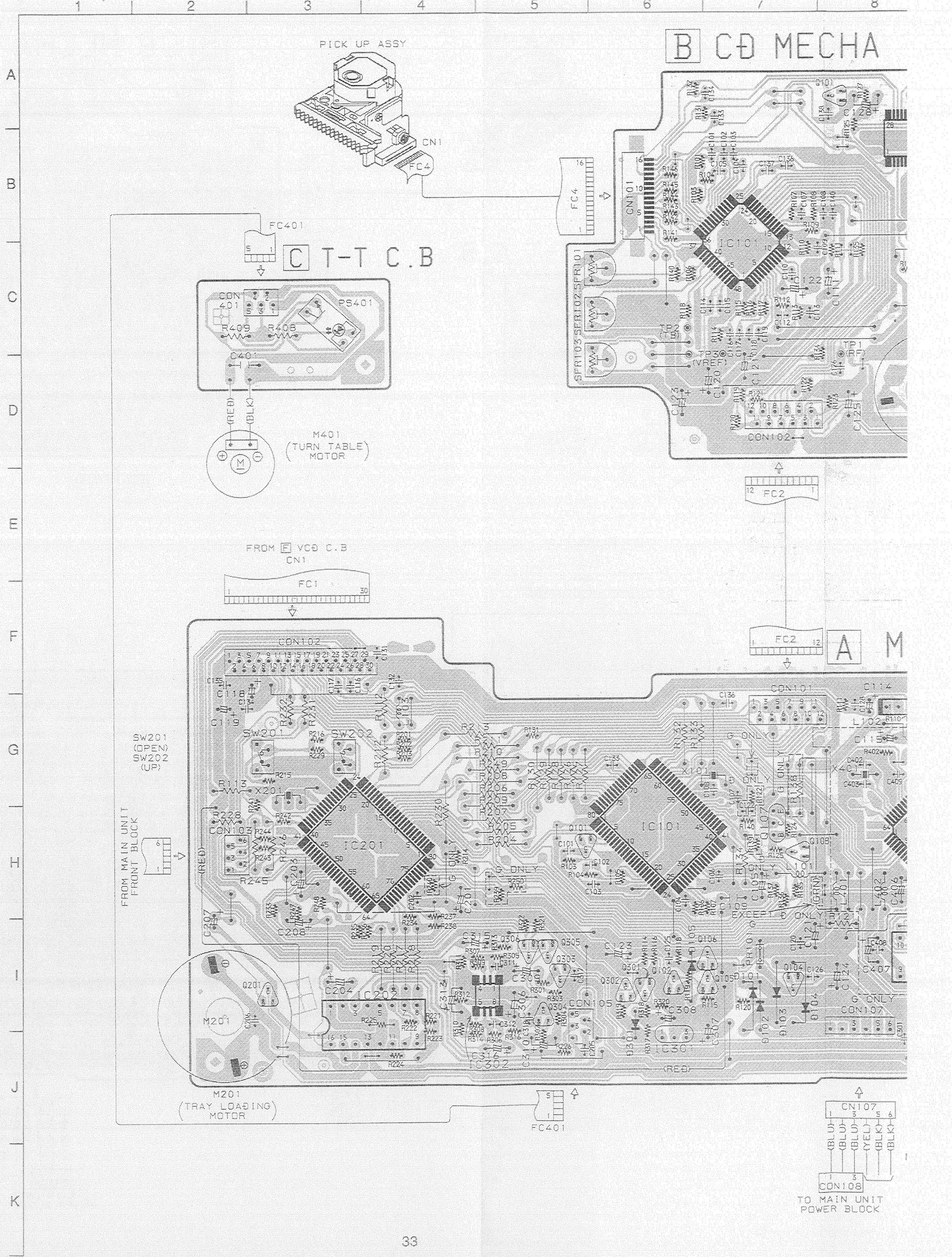
## WIRING-3 (WR)


1
2
3
4
5
6
7
A
B
C
D
E
F
G
FROM MAIN UNIT
FC4
C T-T C.B
CON 401
PS401
R409
R408
C401
(RED)
(BLK)
M401 (TURN TABLE MOTOR)
M
PICK UP ASSY
CN1
FC1
FROM MAIN UNIT
D DRIVE C.B
M1 (SPINDLE MOTOR)
SW1 (INSIDE LIMIT SWITCH)
SW1
M3
M2
M2 (SLED MOTOR)
PIN3
FC5
FROM MAIN UNIT

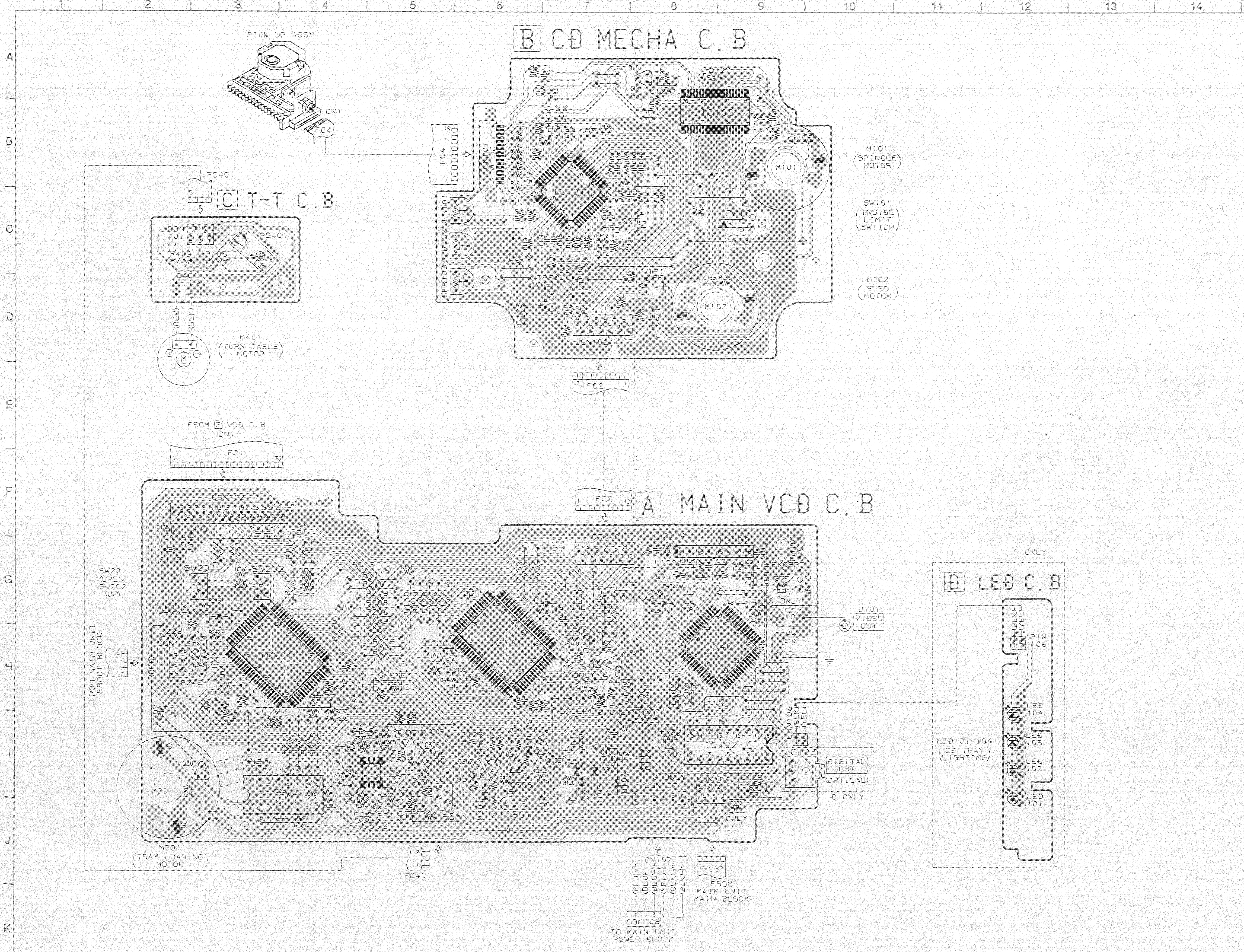
## SCHEMATIC DIAGRAM-4 (WR)


FROM MAIN UNIT
FROM MAIN UNIT
FROM MAIN UNIT
CON401
+2.5V
+5V
PD IC
LD
FOCUS COIL
TRACKING COIL
PD UP ASSY KSM-213B
M1
M2
SW1
(SPINDLE MOTOR)
(SLED MOTOR)
(INSIDE LIMIT SW)
D DRIVE C.B
M401
C401 0.1
R409 27k
R408 560
PS401 GP1S53V
TURN TABLE MOTOR
C T-T C.B
3ZG-2 C5N
4ZG-1 WR

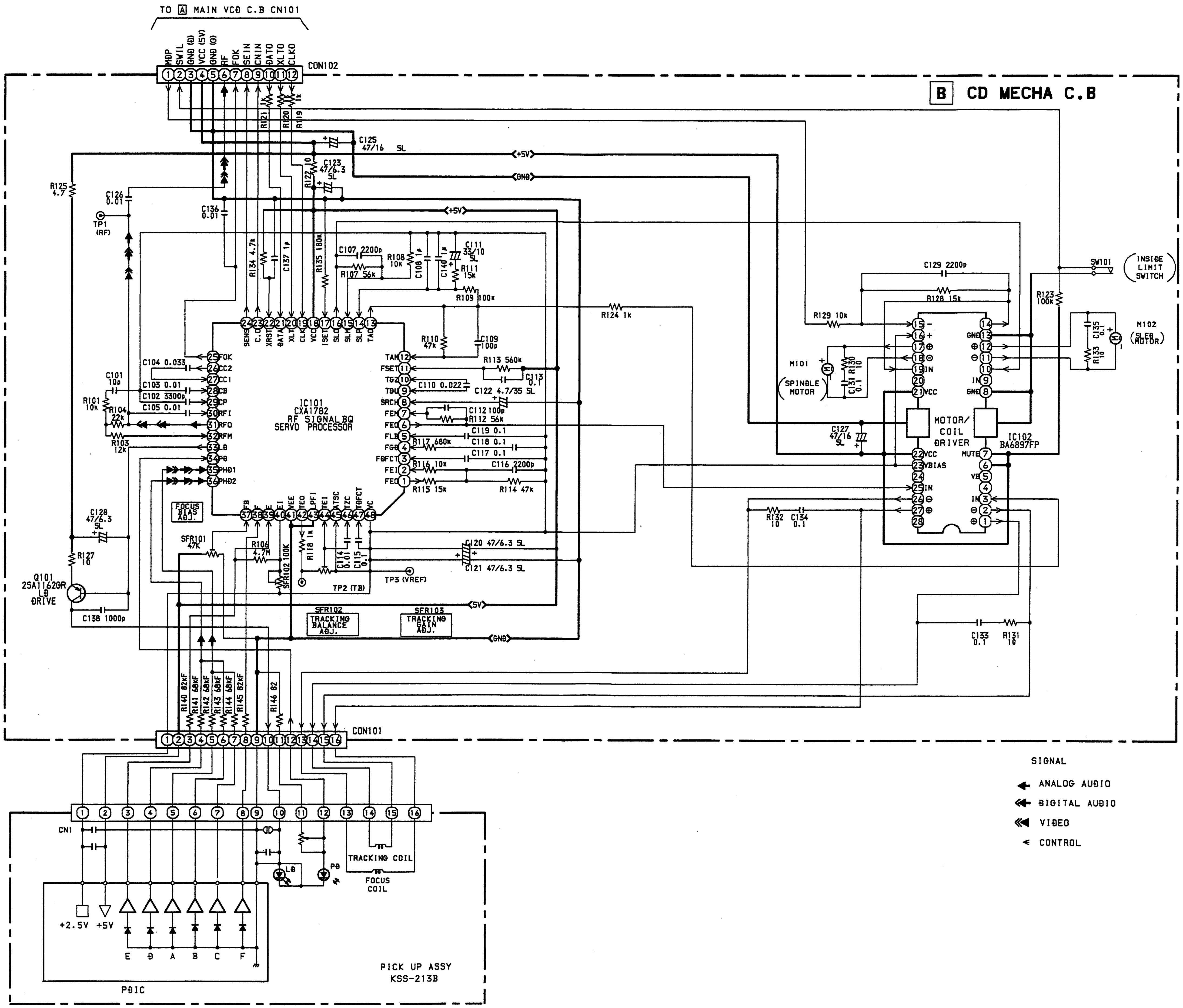
## WIRING-4 (V4L: MAIN VCD／CD MECHA)


1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
K
PICK UP ASSY
CN1
FC4
B CD MECHA
CN101
IC101
SFR101
SFR102
SFR103
TP2
TP3 (VREF)
TP1 (RF)
CON102
FC2
FC401
C T-T C.B
CON 401
PS401
R409
R408
C401
(RED)
(BLK)
M401 (TURN TABLE MOTOR)
FROM F VCD C.B CN1
FC1
A M
CON102
CON101
SW201 (OPEN)
SW202 (UP)
FROM MAIN UNIT FRONT BLOCK
IC201
IC101
IC202
IC301
CON105
CON103
CON107
X201
(RED)
G ONLY
EXCEPT G ONLY
M201
M201 (TRAY LOADING MOTOR)
FC401
CN107
(BLU)
(BLU)
(BLU)
(YEL)
(BLK)
(BLK)
CON108
TO MAIN UNIT POWER BLOCK

## WIRING-4 (V4L: MAIN VCD／CD MECHA)

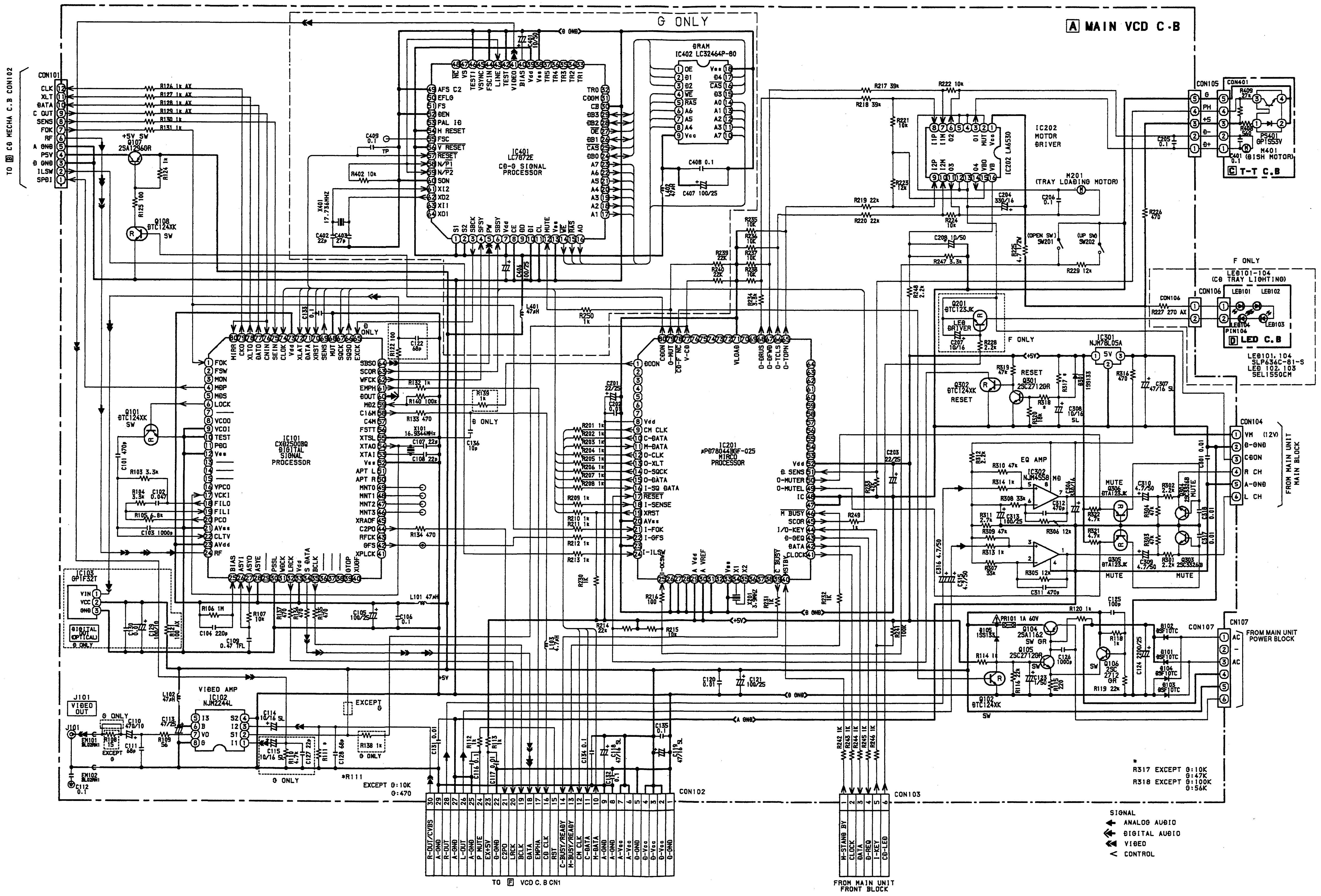

B CD MECHA C.B
C T-T C.B
A MAIN VCD C.B
D LED C.B
PICK UP ASSY
CN1
FC4
CN101
IC101
IC102
M101 (SPINDLE MOTOR)
SW101 (INSIDE LIMIT SWITCH)
M102 (SLED MOTOR)
CON102
FC2
FC401
CON 401
PS401
M401 (TURN TABLE MOTOR)
FROM F VCD C.B CN1
FC1
CON102
SW201 (OPEN) SW202 (UP)
FROM MAIN UNIT FRONT BLOCK
IC201
IC202
IC301
IC302
IC401
IC402
CON101
CON103
CON104
CON105
CON106
CON107
J101 VIDEO OUT
DIGITAL OUT (OPTICAL)
D ONLY
F ONLY
PIN 106
LED 104
LED 103
LED 102
LED 101
LED101-104 (CD TRAY LIGHTING)
M201 (TRAY LOADING MOTOR)
CN107
FC3
FROM MAIN UNIT MAIN BLOCK
CON108
TO MAIN UNIT POWER BLOCK
1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H I J K

# SCHEMATIC DIAGRAM-5 (V4L: CD MECHA)

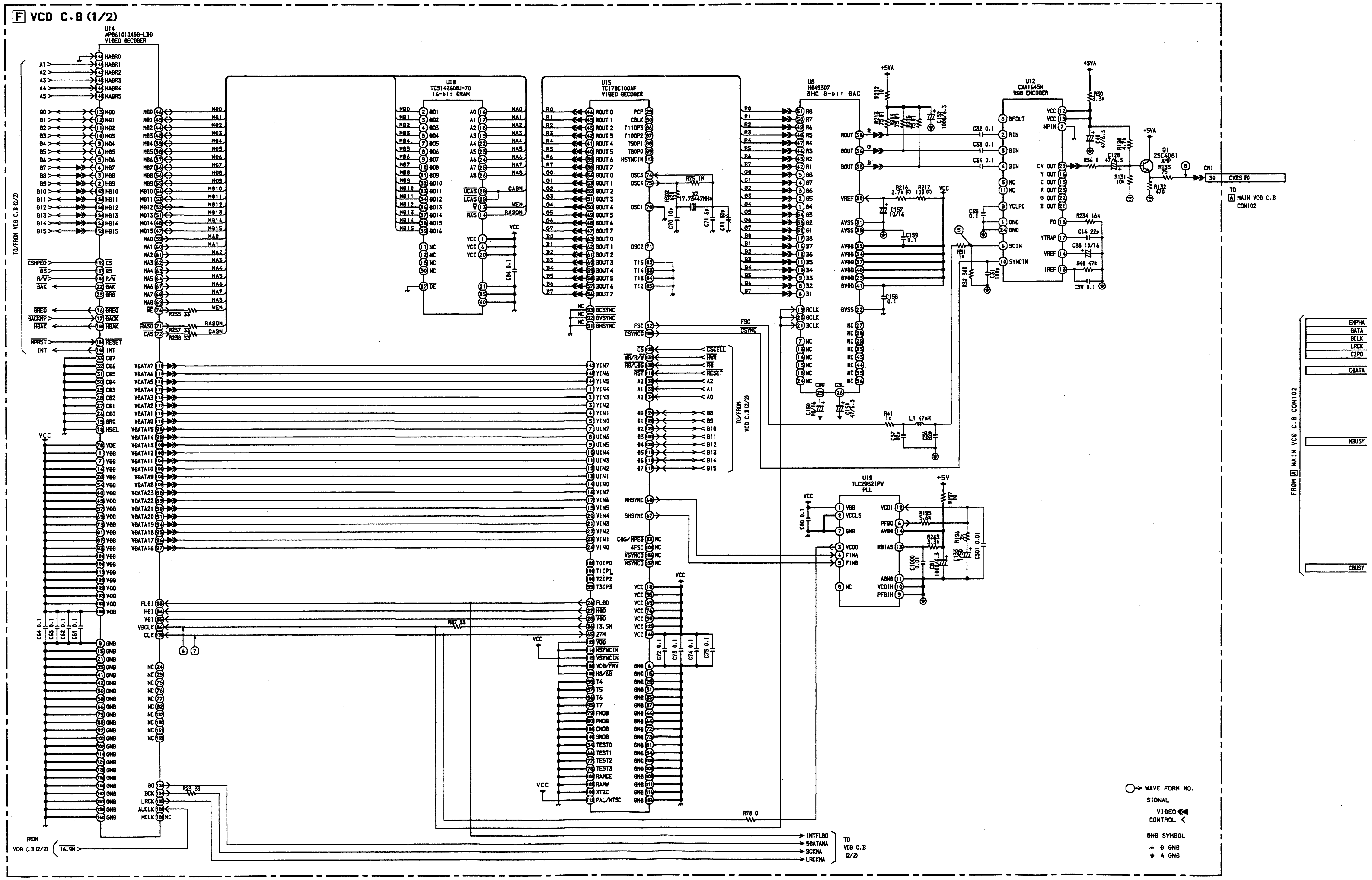


TO A MAIN VCD C.B CN101
MDP
SWIL
GND (D)
VCC (5V)
GND (G)
RF
FOK
SEIN
CNIN
DATO
XLTO
CLKO
CON102
B CD MECHA C.B
C125 47/16 SL
C123 47/6.3 SL
+5V
GND
R125 4.7
C126 0.01
TP1 (RF)
C136 0.01
R134 4.7k
C137 1μ
R135 180k
C107 2200p
R108 10k
R107 56k
C108 1μ
C140 1μ
C111 33/10 SL
R111 15k
R109 100k
R124 1k
R110 47k
C109 100p
R113 560k
C113 0.1
C110 0.022
C122 4.7/35 SL
C112 100p
R112 56k
C119 0.1
R117 680k
C118 0.1
C117 0.1
R116 10k
C116 2200p
R115 15k
R114 47k
C104 0.033
C101 10p
C103 0.01
C102 3300p
C105 0.01
R101 10k
R104 22k
R103 12k
IC101
CXA1782
RF SIGNAL DQ
SERVO PROCESSOR
FOCUS BIAS ADJ.
SFR101 47K
R106 4.7M
R102 100K
R118 1k
C114 0.01
C115 0.1
C120 47/6.3 SL
C121 47/6.3 SL
TP2 (TE)
TP3 (VREF)
C128 47/6.3 SL
R127 10
Q101 2SA1162GR LD DRIVE
C138 1000p
SFR102 TRACKING BALANCE ADJ.
SFR103 TRACKING GAIN ADJ.
5V
C129 2200p
R128 15k
R129 10k
R123 100k
SW101
INSIDE LIMIT SWITCH
M101
SPINDLE MOTOR
C131 0.1
R130 10
M102 (SLED MOTOR)
R133 10
C135 0.1
MOTOR/ COIL DRIVER
IC102 BA6897FP
C127 47/16 SL
R132 10
C134 0.1
C133 0.1
R131 10
R140 82kF
R141 68kF
R142 68kF
R143 68kF
R144 68kF
R145 82kF
R146 82
CON101
CN1
TRACKING COIL
FOCUS COIL
LD
PD
+2.5V
+5V
E D A B C F
PDIC
PICK UP ASSY KSS-213B
SIGNAL
ANALOG AUDIO
DIGITAL AUDIO
VIDEO
CONTROL

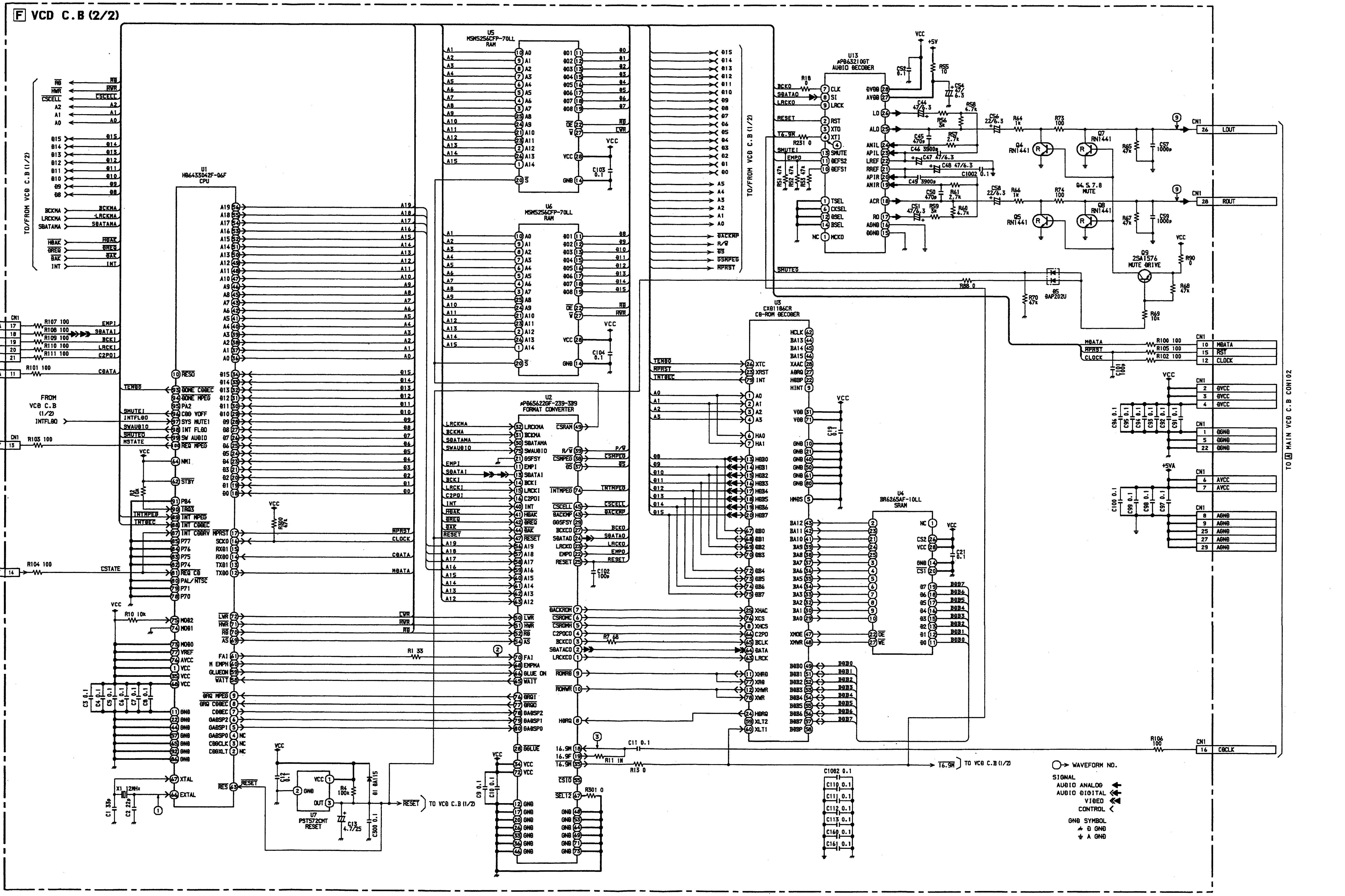
# SCHEMATIC DIAGRAM-6 (V4L: MAIN VCD)



A MAIN VCD C·B
G ONLY
TO B CD MECHA C.B CON102
CON101
CLK
XLT
DATA
C OUT
SENS
FOK
RF
A GND
P5V
D GND
ILSW
SPDI
Q107 2SA1296GR
Q108 DTC124XK SW
IC401 LC7872E CD-G SIGNAL PROCESSOR
X401 17.734MHZ
DRAM IC402 LC32464P-80
IC101 CXD2500BQ DIGITAL SIGNAL PROCESSOR
X101 16.9344MHz
Q101 DTC124XK SW
IC103 GP1F32T
DIGITAL OUT (OPTICAL) G ONLY
IC201 μPD78044BGF-025 MICRO PROCESSOR
X201 3.9MHZ
IC202 LA6530 MOTOR DRIVER
M201 (TRAY LOADING MOTOR)
(OPEN SW) SW201
(UP SW) SW202
CON105
CON401
PS401 GP1S53V
M401 (DISH MOTOR)
C T-T C.B
F ONLY
LED101-104 (CD TRAY LIGHTING)
CON106
D LED C.B
LED101, 104 SLP636C-81-S
LED 102, 103 SEL1550CM
Q201 DTC123JK LED DRIVER
F ONLY
IC301 NJM78L05A
Q302 DTC124XK RESET
Q301 2SC2712GR
RESET
EQ AMP
IC302 NJM4558 MD
MUTE
Q306 DTA123JK
Q304 2SC3326B
Q305 DTA123JK
Q303 2SC3326B
CON104
VM (12V)
D-GND
CDON
R CH
A-GND
L CH
FROM MAIN UNIT MAIN BLOCK
PR101 1A 60V
Q104 2SA1162 SW GR
Q105 2SC2712GR
Q106 2SC2712 GR
Q102 DTC124XK SW
D101-D104 DSF10TC
D105 1SS133
CON107
FROM MAIN UNIT POWER BLOCK
VIDEO AMP IC102 NJM2244L
J101 VIDEO OUT
G ONLY
EXCEPT G
CON102
TO F VCD C.B CN1
R-OUT/CVBS
A-GND
R-OUT
A-GND
L-OUT
A-GND
P MUTE
EX+5V
D-GND
C2PO
LRCK
BCLK
DATA
EMPHA
CD CLK
RST
C-BUSY/READY
M-BUSY/READY
CM CLK
C-DATA
M-DATA
A-GND
A-Vcc
A-Vcc
D-GND
D-GND
D-Vcc
D-Vcc
D-GND
D-GND
CON103
M-STAND BY
CLOCK
DATA
D-REQ
I-KEY
CD-LED
FROM MAIN UNIT FRONT BLOCK
*R111 EXCEPT G:10K G:470
* R317 EXCEPT G:10K G:47K
R318 EXCEPT G:100K G:56K
SIGNAL
ANALOG AUDIO
DIGITAL AUDIO
VIDEO
CONTROL

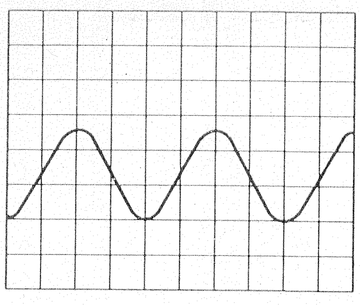

F VCD C.B (1/2)
U14
APB61010A60-LB0
VIDEO DECODER
U18
TC514260BJ-70
16-bit DRAM
U15
TC170C100AF
VIDEO DECODER
U8
MB49307
3HC 8-bit DAC
U12
CXA1645M
RGB ENCODER
Q1
2SC4081
AMP
U19
TLC2932IPW
PLL
TO/FROM VCD C.B (2/2)
TO/FROM VCD C.B (2/2)
X2 17.734475MHz
CN1
30 CVBS 00
TO
A MAIN VCD C.B
CON102
FROM A MAIN VCD C.B CON102
EMPHA
DATA
BCLK
LRCK
C2PO
CDATA
MBUSY
CBUSY
FROM
VCD C.B (2/2)
16.9M
INTFLDD
SDATAMA
BCKMA
LRCKMA
TO
VCD C.B
(2/2)
+5VA
+5V
VCC
WAVE FORM NO.
SIGNAL
VIDEO
CONTROL
GND SYMBOL
D GND
A GND

# SCHEMATIC DIAGRAM-8 (V4L: VCD 2/2)

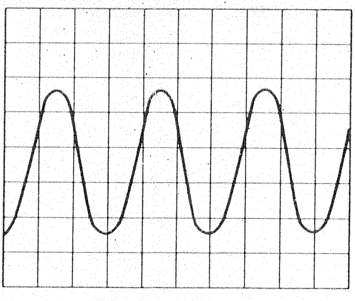

F VCD C.B (2/2)
U1 HD6433042F-06F CPU
U5 MSM5256CFP-70LL RAM
U6 MSM5256CFP-70LL RAM
U2 µPD65622GF-239-3B9 FORMAT CONVERTER
U3 CXD1186CR CD-ROM DECODER
U4 BR6265AF-10LL SRAM
U13 µPD6321OGT AUDIO DECODER
U7 PST572CMT RESET
Q4 RN1441
Q5 RN1441
Q7 RN1441
Q8 RN1441
Q4,5,7,8 MUTE
Q9 2SA1576 MUTE DRIVE
D5 DAP202U
D1 DA115
X1 12MHz
TO/FROM VCD C.B (1/2)
FROM VCD C.B (1/2) INTFLDD
TO VCD C.B (1/2)
TO MAIN VCD C.B CON102
CN1
LOUT
ROUT
MDATA
RST
CLOCK
DVCC
DGND
AVCC
AGND
CDCLK
EMPHA
DATA
BCLK
LRCK
C2PO
CDATA
MBUSY
CBUSY
WAVEFORM NO.
SIGNAL
AUDIO ANALOG
AUDIO DIGITAL
VIDEO
CONTROL
GND SYMBOL
D GND
A GND

## WAVE FORM

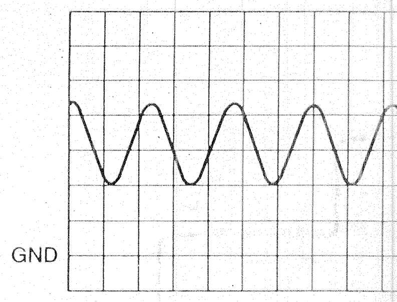
① U1 Pin (66) (EXTAL) VOLT/DIV: 1V TIME/DIV: 20nS



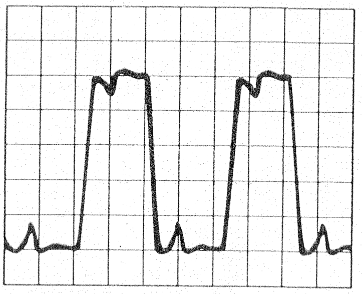
③ U2 Pin ⑱ (16.9M) VOLT/DIV: 1V TIME/DIV: 20nS



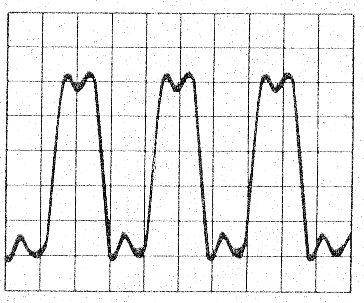
⑤ U12 Pin ⑥ (SC IN) VOLT TIME/



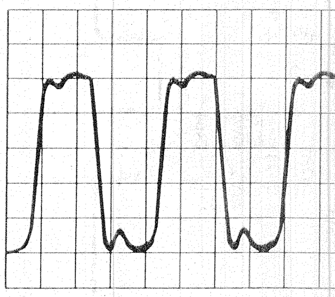
② U2 Pin (70) (FAI) VOLT/DIV: 1V TIME/DIV: 20nS



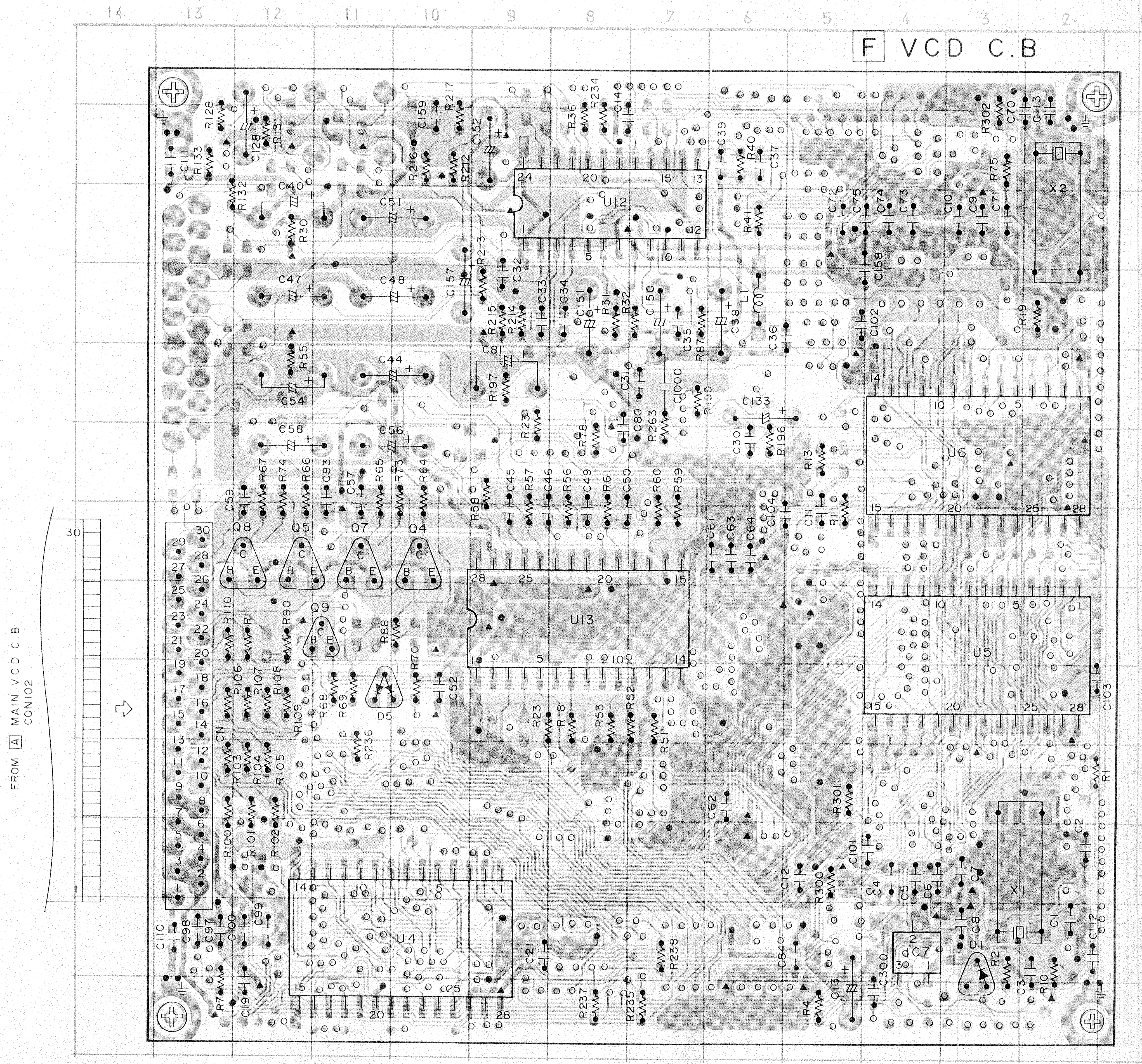
④ U13 Pin ④ (XTI) VOLT/DIV: 1V TIME/DIV: 20nS



⑥ U14 Pin (86) (VD CLK) VOLT/ TIME/I



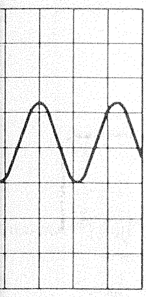
## WIRING-5 (V4L: VCD)


14
13
12
11
10
9
8
7
6
5
4
3
2
F VCD C.B
FROM A MAIN VCD C.B CON102
30
1
CN
U12
U13
U6
U5
U4
X1
X2
Q4
Q5
Q7
Q8
Q9
D5
L1
C7

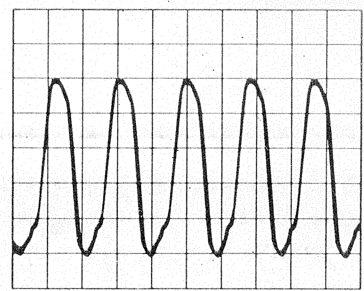
### Through-Hole Note

| SIGNAL | VCC | +5V | A GND | D GND |
|---|---|---|---|---|
| ○ | ▲ | ▲ | ● | ● |

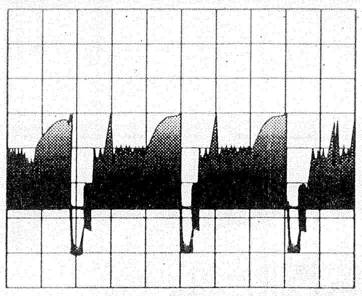
VOLT/DIV: 1.0V
TIME/DIV: 0.1µS



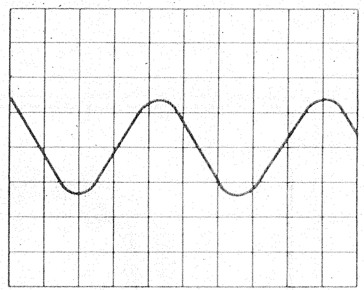
⑦ U14 Pin ⑬⑤ (CLK)
VOLT/DIV: 1V
TIME/DIV: 20nS



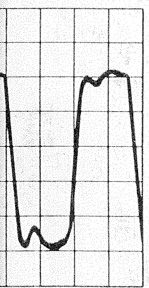
KARAOKE
VOLT/DIV: 200mV
TIME/DIV: 20µS



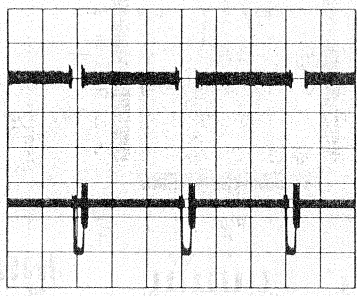
⑨ CN1 Pin ㉖ (L OUT)
CN1 Pin ㉘ (R OUT)
1kHz OUTPUT
VOLT/DIV: 1.0V
TIME/DIV: 0.2mS



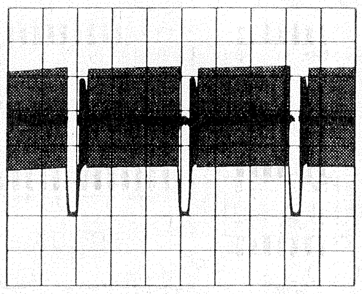
) VOLT/DIV: 1V
TIME/DIV: 20nS



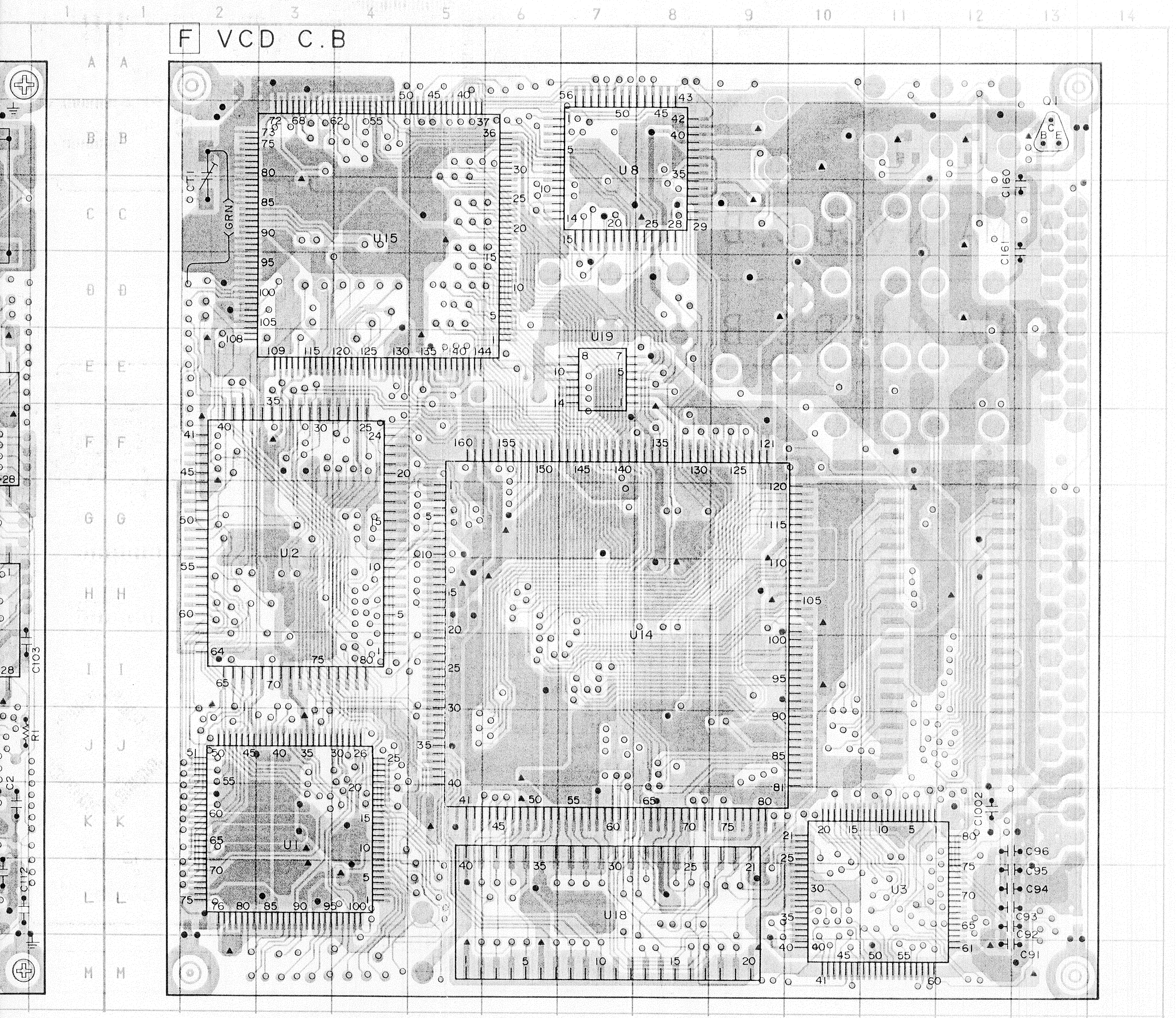
⑧ CN1 Pin ㉚ (CVBS R)
WHITE
VOLT/DIV: 200mV
TIME/DIV: 20µS

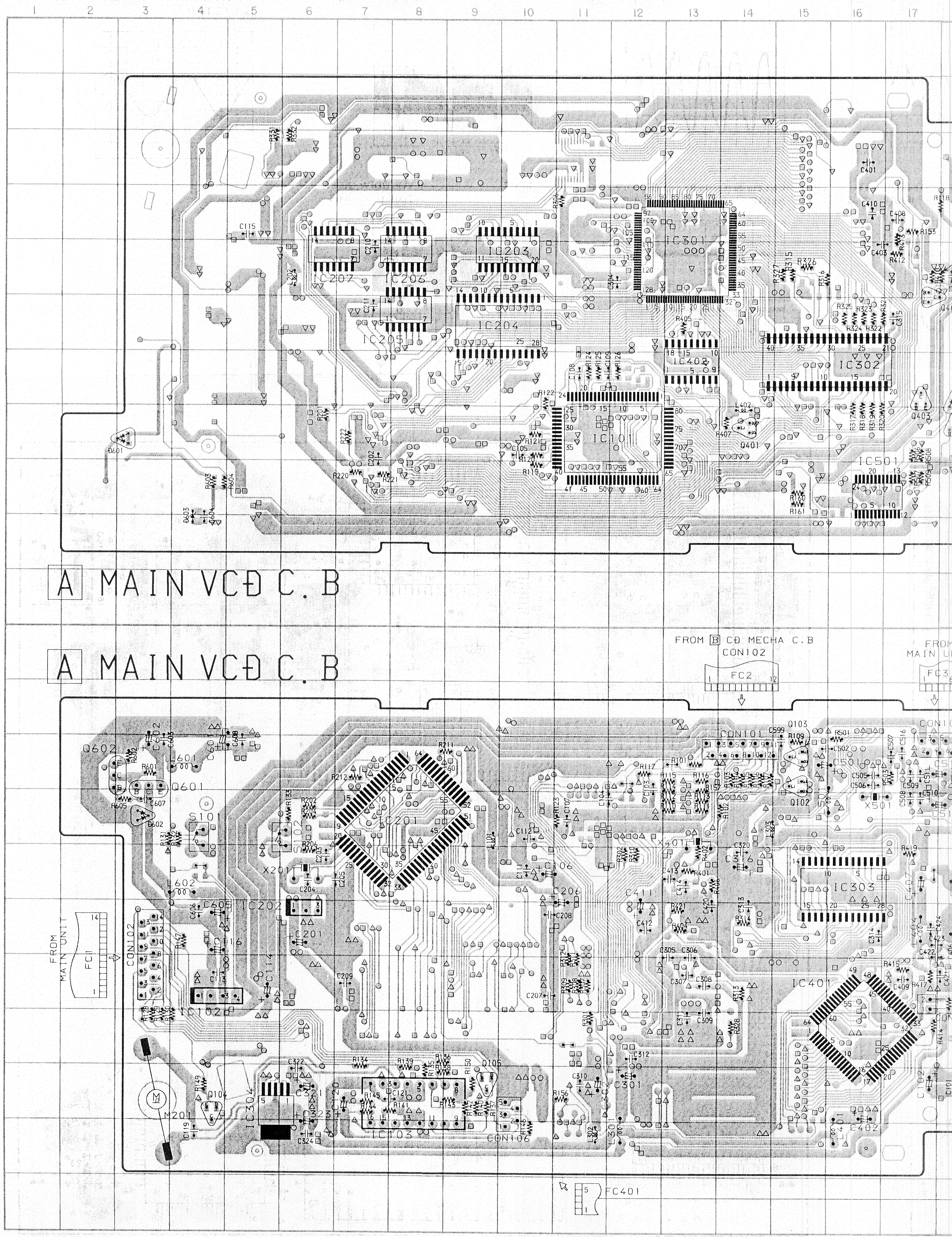


BLUE
VOLT/DIV: 100mV
TIME/DIV: 20µS



F VCD C.B

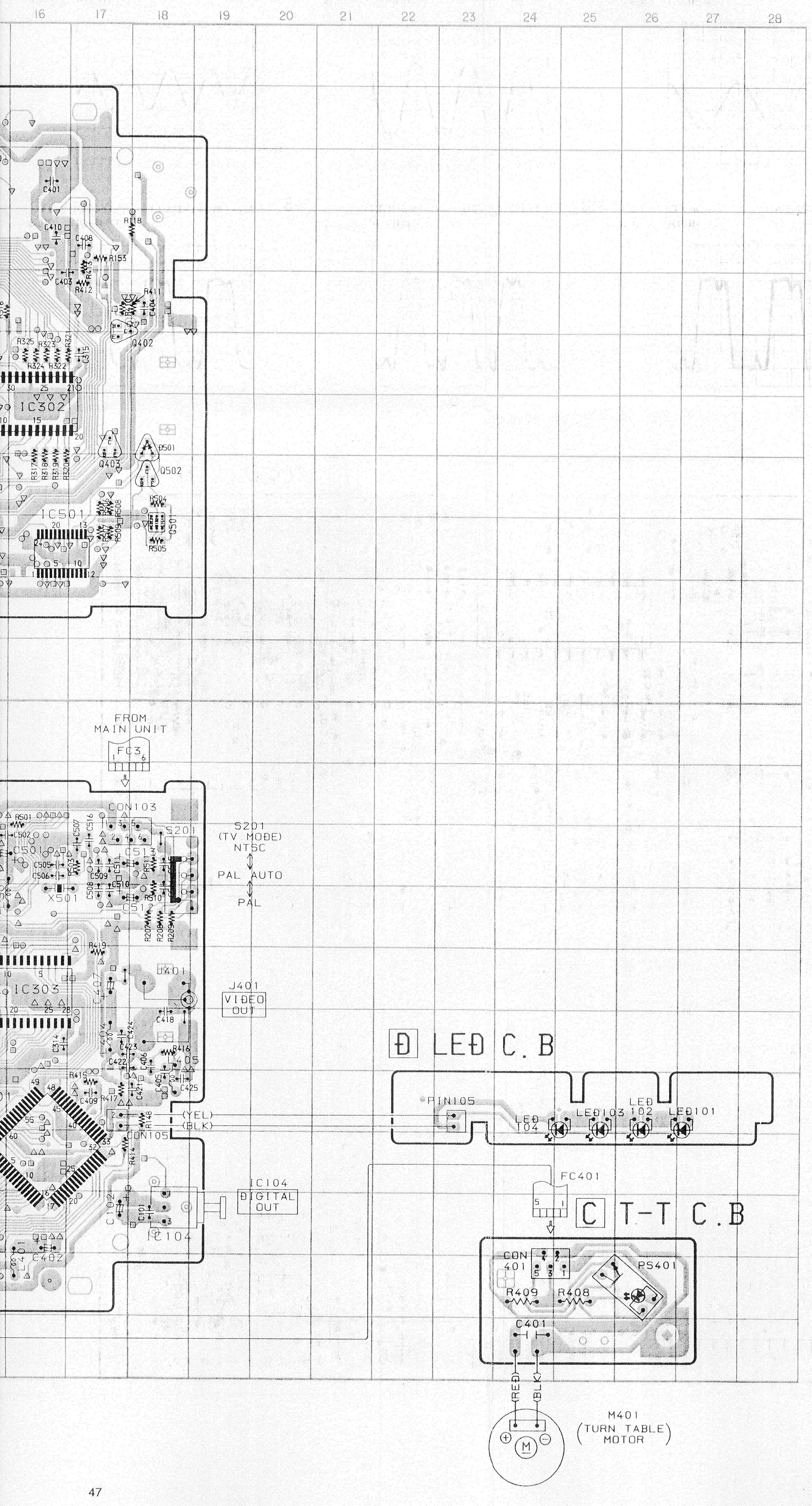

1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H I J K L M
U15
U8
U19
U2
U14
U1
U18
U3
Q1
B C E
CT1
(GRN)
C160
C161
C1002
C96
C95
C94
C93
C92
C91
C103
R1
C112



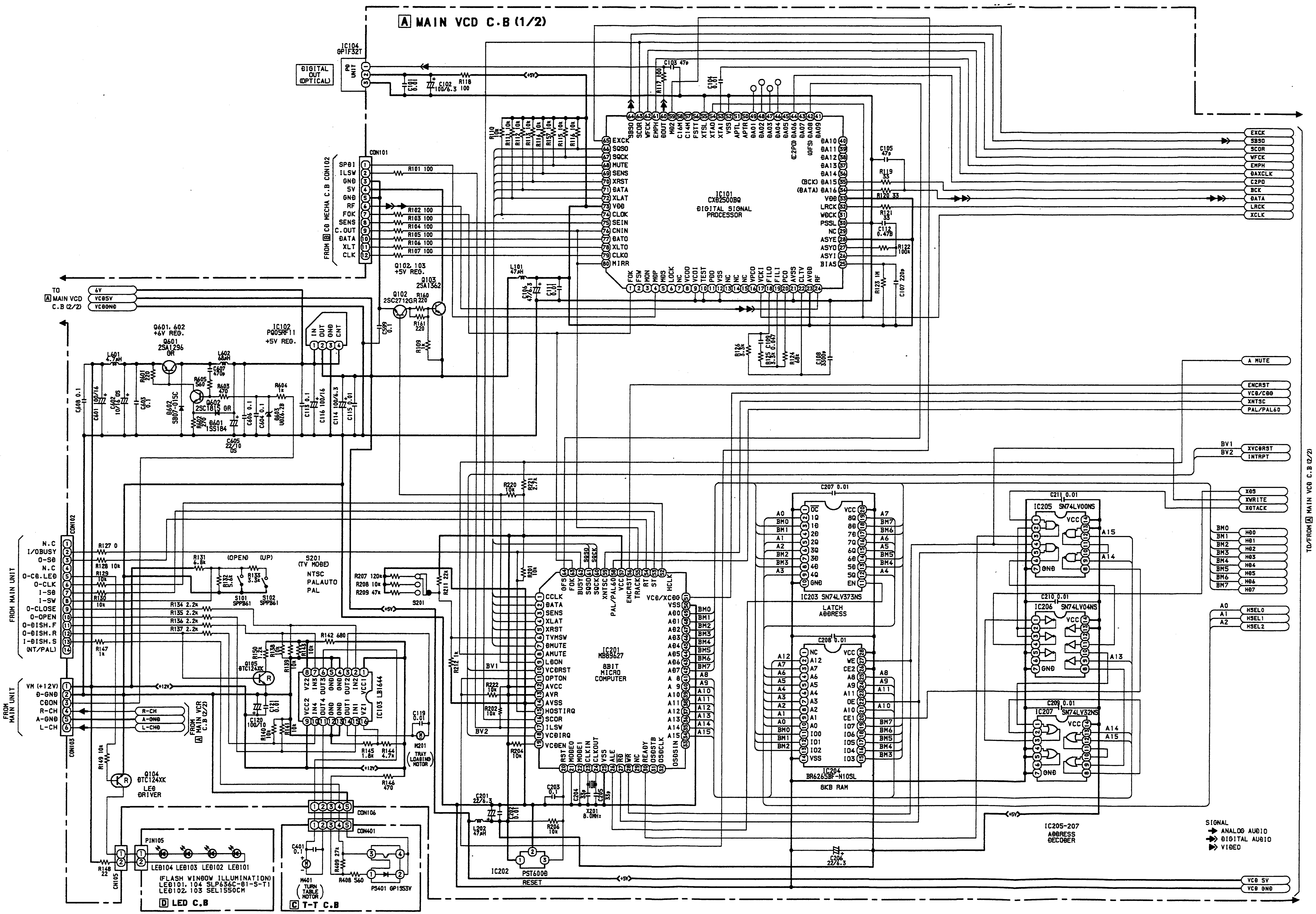
A MAIN VCD C.B

A MAIN VCD C.B

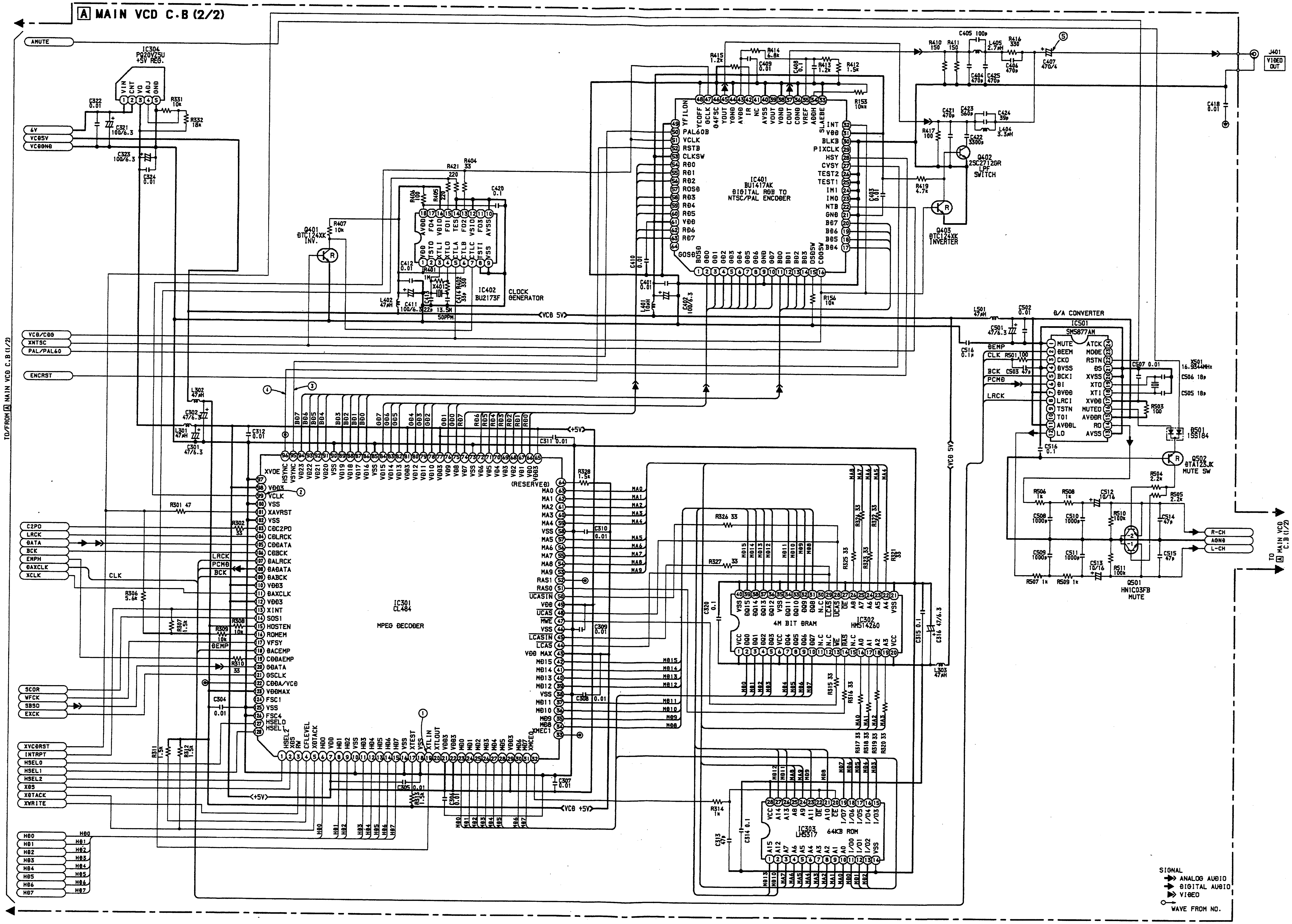
FROM B CD MECHA C.B
CON102
FC2
FROM
MAIN UNIT
FC1
CON102
FC401
IC101
IC201
IC202
IC203
IC204
IC205
IC206
IC207
IC301
IC302
IC303
IC304
IC401
IC402
IC501
IC102
IC103
CON101
CON106
Q601
Q602
Q603
Q401
Q403
Q101
Q102
Q103
Q104
Q105
S101
S102
X201
X401
X501
M201
L401
L402
L601
L602


16
17
18
19
20
21
22
23
24
25
26
27
28
C401
C410
C408
R118
R153
R413
C403
R412
R411
C404
Q402
R325
R323
R321
C315
R324
R322
IC302
R317
R318
R319
R320
Q403
D501
Q502
IC501
R504
R506
R508
R509
Q501
R505
FROM
MAIN UNIT
FC3
CON103
R501
C502
C507
C516
C501
S201
C513
R511
C505
C503
C506
C509
C511
C510
C508
X501
R510
C512
R207
R208
R209
R419
J401
IC303
C407
C418
C404
C424
C423
C314
C422
R416
C406
C405
R415
C409
R417
C421
C425
R148
(YEL)
(BLK)
CON105
R414
C102
C101
IC104
C402
S201
(TV MODE)
NTSC
PAL
AUTO
PAL
J401
VIDEO
OUT
IC104
DIGITAL
OUT
D LED C.B
PIN105
LED 104
LED103
LED 102
LED101
FC401
C T-T C.B
CON 401
PS401
R409
R408
C401
(RED)
(BLK)
M
M401
(TURN TABLE MOTOR)

# SCHEMATIC DIAGRAM-9 (V5: MAIN VCD 1/2)


A MAIN VCD C.B (1/2)
IC104 GP1F32T
DIGITAL OUT (OPTICAL)
PD UNIT
C101 0.01
C102 100/6.3
R118 100
C103 47p
IC101 CXD2500BQ DIGITAL SIGNAL PROCESSOR
CON101
FROM B CD MECHA C.B CON102
SPDL
ILSW
GND
5V
GND
RF
FOK
SENS
C.OUT
DATA
XLT
CLK
R101 100
R102 100
R103 100
R104 100
R105 100
R106 100
R107 100
Q102, 103 +5V REG.
Q102 2SC2712GR
Q103 2SA1362
L101 47μH
TO A MAIN VCD C.B (2/2)
6V
VCD5V
VCDGND
Q601, 602 +6V REG.
Q601 2SA1296 GR
IC102 PQ05RF11 +5V REG.
L601 4.7μH
L602 68μH
Q602 2SC1815 GR
D602 SB07-015C
D601 1SS184
D603 UDZ6.2B
C605 22/10 OS
EXCK
SBSO
SCOR
WFCK
EMPH
DAXCLK
C2PO
BCK
DATA
LRCK
XCLK
A MUTE
ENCRST
VCD/CDD
XNTSC
PAL/PAL60
BV1
BV2
XVCDRST
INTRPT
XDS
XWRITE
XDTACK
TO/FROM A MAIN VCD C.B (2/2)
CON102
FROM MAIN UNIT
N.C
I/DBUSY
O-SD
N.C
O-CD.LED
O-CLK
I-SD
I-SW
O-CLOSE
O-OPEN
O-DISH.F
O-DISH.R
I-DISH.S
(NT/PAL)
R127 0
R128 10k
R131 6.8k
(OPEN) (UP)
S201 (TV MODE)
NTSC
PALAUTO
PAL
S101 SPPB61
S102 SPPB61
R142 680
Q105 DTC124XK
IC103 LB1644
M201 TRAY LOADING MOTOR
FROM MAIN UNIT
VM (+12V)
D-GND
CDON
R-CH
A-GND
L-CH
CON103
FROM A MAIN VCD C.B (2/2)
R-CH
A-GND
L-CHD
Q104 DTC124XK LED DRIVER
IC201 MB89627 8BIT MICRO COMPUTER
X201 8.0MHz
IC202 PST600D RESET
L202 47μH
C201 22/6.3
IC203 SN74LV373NS LATCH ADDRESS
IC204 BR6265BF-N10SL 8KB RAM
IC205 SN74LV00NS
IC206 SN74LV04NS
IC207 SN74LV32NS
IC205-207 ADDRESS DECODER
C207 0.01
C208 0.01
C209 0.01
C210 0.01
C211 0.01
C206 22/6.3
HSEL0
HSEL1
HSEL2
HD0
HD1
HD2
HD3
HD4
HD5
HD6
HD7
VCD 5V
VCD GND
CON106
CON401
PIN105
LED104 LED103 LED102 LED101
(FLASH WINDOW ILLUMINATION)
LED101, 104 SLP636C-81-5-T1
LED102, 103 SEL1550CM
D LED C.B
M401 TURN TABLE MOTOR
PS401 GP1S53V
R408 560
R409 27k
C401 0.1
C T-T C.B
CN105
R148 22
SIGNAL
ANALOG AUDIO
DIGITAL AUDIO
VIDEO

# SCHEMATIC DIAGRAM-10 (V5: MAIN VCD 2/2)

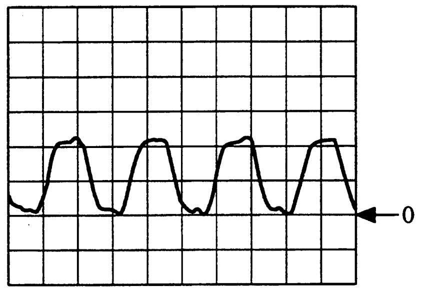

A MAIN VCD C.B (2/2)
IC304 PQ20VZ5U +5V REG.
VIN CNT VO ADJ GND
C322 0.01
C321 100/6.3
C323 100/6.3
C324 0.01
R331 10k
R332 18k
AMUTE
6V
VC05V
VC0GND
Q401 DTC124XK INV.
R407 10k
R421 220
R404 33
C420 0.1
IC402 BU2173F CLOCK GENERATOR
X401 13.5M 50PPM
L402 47μH
C411 100/6.3
C412 0.01
R401 1M
VCD 5V
IC401 BU1417AK DIGITAL RGB TO NTSC/PAL ENCODER
R415 1.2k
R414 6.8k
C409 0.01
R413 1.2k
R412 1.5k
R153 10k
R156 10k
C410 0.01
C401 0.01
L401 10μH
C402 100/6.3
C403 0.01
R410 150
R411 150
C405 100p
L405 2.7μH
R416 330
C406 470p
C404 470p
C425 470p
C407 470/4
J401 VIDEO OUT
C418 0.01
C421 470p
C423 560p
C424 39p
L404 3.3μH
R417 100
C422 3300p
Q402 2SC2712GR LPF SWITCH
R419 4.7k
Q403 DTC124XK INVERTER
VCD/CDG
XNTSC
PAL/PAL60
ENCRST
TO/FROM A MAIN VCD C.B (1/2)
L302 47μH
C302 47/6.3
L301 47μH
C301 47/6.3
C312 0.01
C311 0.01
+5V
IC301 CL484 MPEG DECODER
R328 1.5k
R301 47
R302 33
C2PO
LRCK
DATA
BCK
EMPH
DAXCLK
XCLK
CLK
R306 5.6k
R307 1.5k
R308 10k
R309 10k
R310 33
DEMP
PCMD
C304 0.01
SCOR
WFCK
SBSO
EXCK
XVCDRST
INTRPT
HSEL0
HSEL1
HSEL2
XDS
XDTACK
XWRITE
R311 1.5k
R312 1.5k
R313 1.5k
C305 0.01
C306 0.01
C307 0.01
C308 0.01
C309 0.01
C310 0.01
VCD +5V
HD0
HD1
HD2
HD3
HD4
HD5
HD6
HD7
R326 33
R327 33
IC302 HM514260 4M BIT DRAM
C320 0.1
C315 0.1
C316 47/6.3
L303 47μH
R314 1k
C313 47p
C314 0.1
IC303 LH5317 64KB ROM
L501 47μH
C502 0.01
C501 47/6.3
C516 0.1
D/A CONVERTER
IC501 SM5877AM
MUTE DEEM CKO DVSS BCKI DI DVDD LRCI TSTN TOI AVDDL LO
ATCK MODE RSTN DS XVSS XTO XTI XVDD MUTEO AVDDR RO AVSS
R501 100
C503 47p
C507 0.01
X501 16.9344MHz
C506 18p
C505 18p
R503 100
D501 1SS184
Q502 DTA123JK MUTE SW
R504 2.2k
R505 2.2k
R506 1k
R508 1k
C512 10/16
C508 1000p
C510 1000p
R510 100k
C514 47p
C509 1000p
C511 1000p
C513 10/16
R511 100k
C515 47p
R507 1k
R509 1k
Q501 HN1C03FB MUTE
R-CH
AGND
L-CH
TO A MAIN VCD C.B (1/2)
SIGNAL
ANALOG AUDIO
DIGITAL AUDIO
VIDEO
WAVE FROM NO.

## WAVE FORM

①

IC301 Pin ⑲ (GCK)
40.5MHz
VCD PLAY
TV MODE: • NTSC
• PAL
• PAL AUTO

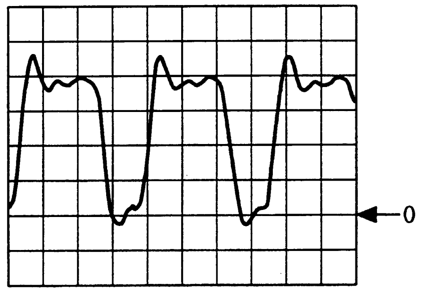
VOLT/DIV: 1V
TIME/DIV: 10nS



②

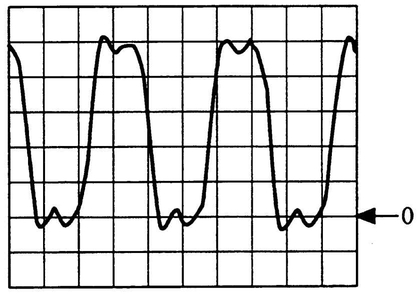
IC301 Pin (99) (VCLK)
27MHz±1350Hz
VCD PLAY
TV MODE: • NTSC
• PAL
• PAL AUTO

VOLT/DIV: 1V
TIME/DIV: 10nS



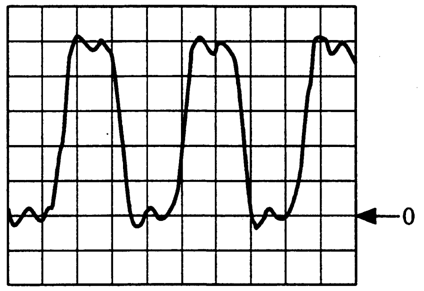
28.375MHz
CDG PLAY
TV MODE: • PAL
• PAL AUTO

VOLT/DIV: 1V
TIME/DIV: 10nS



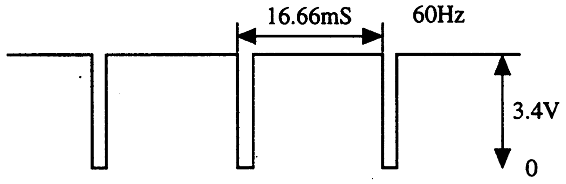
28.6363MHz
CDG PLAY
TV MODE: • NTSC

VOLT/DIV: 1V
TIME/DIV: 10nS

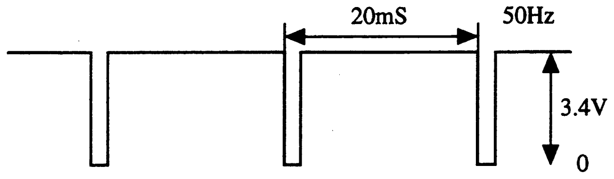


③

IC301 Pin (95) (V SYNC)
VCD, CDG PLAY
TV MODE: • NTSC
• PAL AUTO

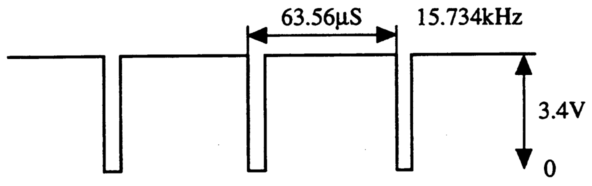

16.66mS
60Hz
3.4V
0

VCD, CDG PLAY
TV MODE: PAL

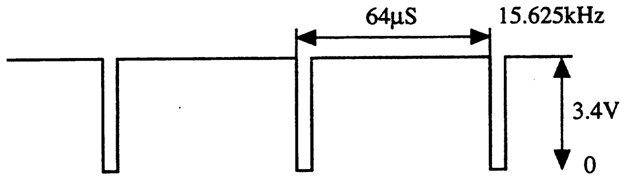

20mS
50Hz
3.4V
0

④

IC301 Pin (96) (H SYNC)
VCD, CDG PLAY
TV MODE: • NTSC
• PAL AUTO


63.56µS
15.734kHz
3.4V
0

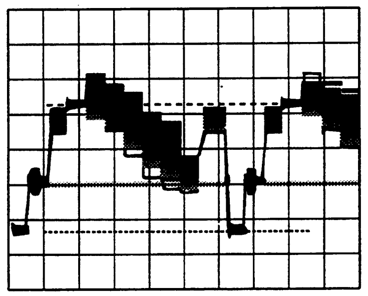
VCD, CDG PLAY
TV MODE: PAL


64µS
15.625kHz
3.4V
0

⑤

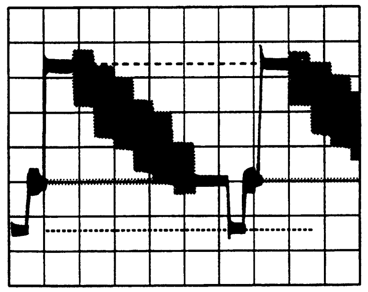
VIDEO OUT
C407 ⊖ side
CDG PLAY: CD-T03 TRACK2
TV MODE:• NTSC

VOLT/DIV: 200mV
TIME/DIV: 10µS

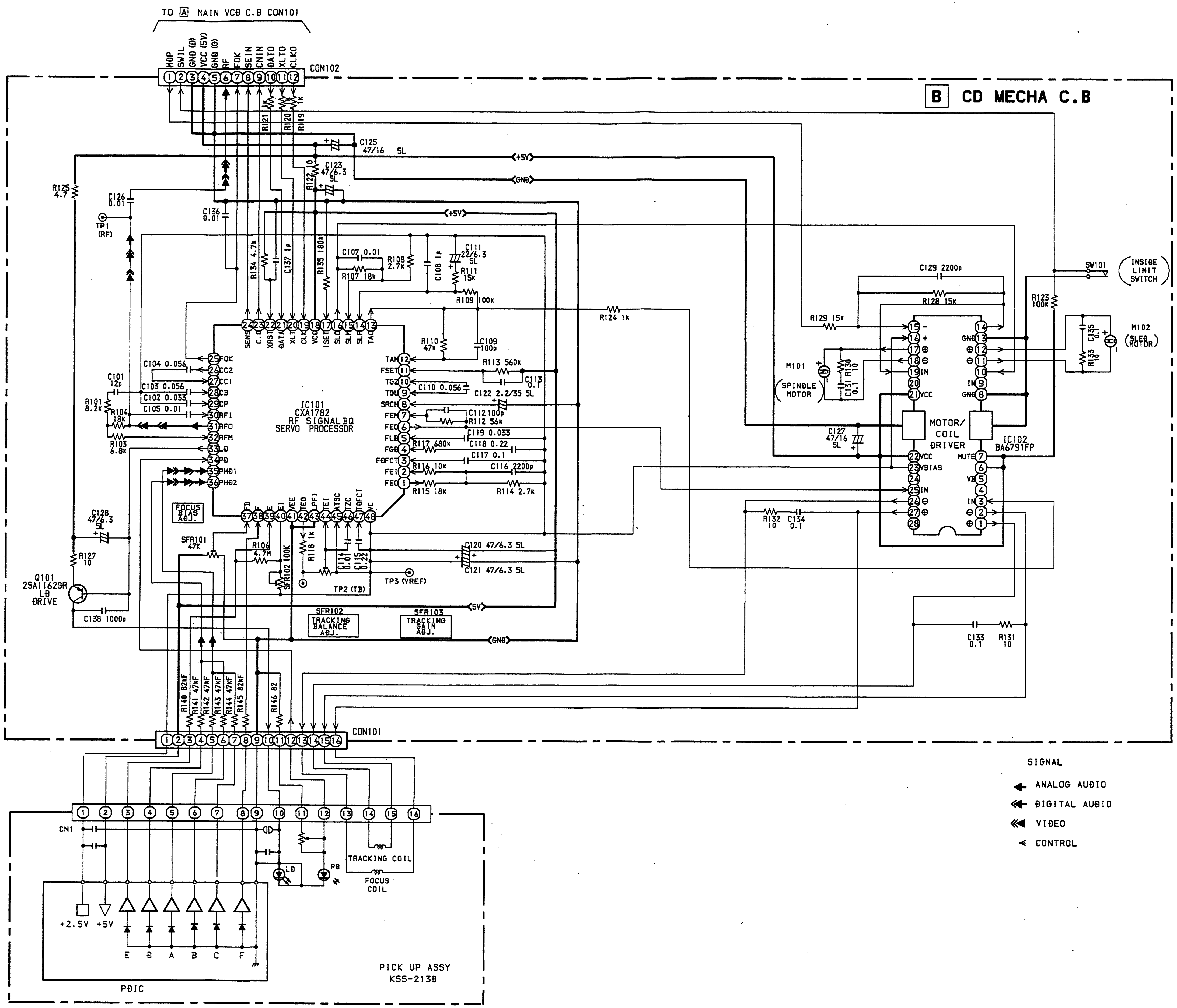


VCD PLAY: CD-T05 TRACK4
TV MODE:• NTSC

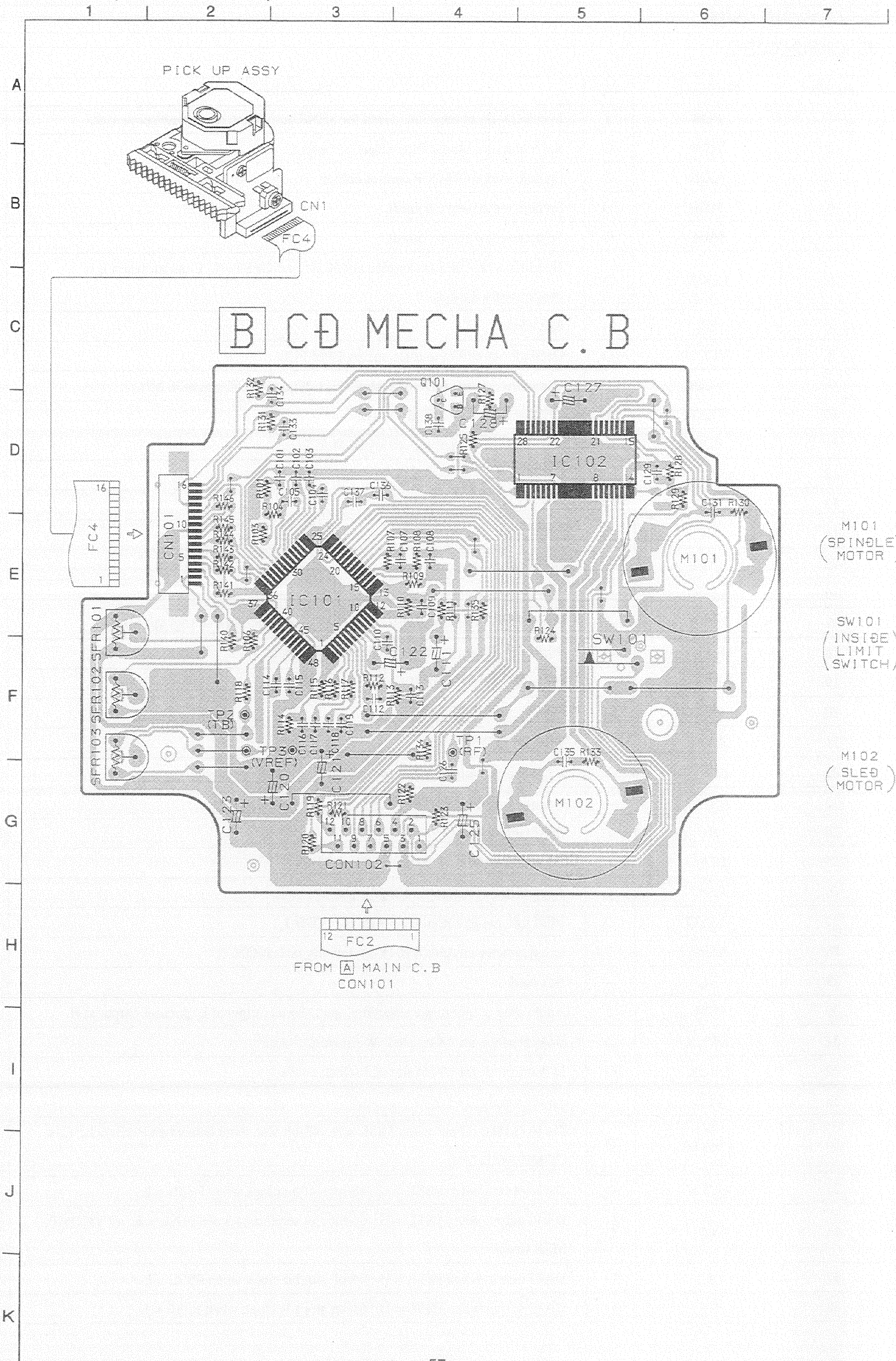
VOLT/DIV: 200mV
TIME/DIV: 10µS



# SCHEMATIC DIAGRAM-11 (V5: CD MECHA)


TO A MAIN VCD C.B CON101
CON102
MDP
SWIL
GND (D)
VCC (5V)
GND (G)
RF
FOK
SEIN
CNIN
DATO
XLTO
CLKO
B CD MECHA C.B
C125 47/16 5L
C123 47/6.3 5L
+5V
GND
R125 4.7
C126 0.01
C136 0.01
TP1 (RF)
R121 1k
R120 1k
R119 1k
R122 10
R134 4.7k
C137 1μ
R135 180k
C107 0.01
R107 18k
R108 2.7k
C108 1μ
C111 22/6.3 5L
R111 15k
R109 100k
R110 47k
C109 100p
R113 560k
C113 0.1
C110 0.056
C122 2.2/35 5L
C112 100p
R112 56k
C119 0.033
R117 680k
C118 0.22
C117 0.1
R116 10k
C116 2200p
R115 18k
R114 2.7k
C104 0.056
C101 12p
C103 0.056
C102 0.033
C105 0.01
R101 8.2k
R104 18k
R103 6.8k
IC101
CXA1782
RF SIGNAL BQ
SERVO PROCESSOR
FOK
CC2
CC1
CB
CP
RFI
RFO
RFM
LD
PD
PHD1
PHD2
SENS
C.O
XRST
DATA
XLT
CLK
VCC
ISET
SLO
SLM
SLP
TAO
TAM
FSET
TGZ
TGU
SRCH
FEM
FEO
FLB
FGD
FDFCT
FEI
FEO
FB
VEE
LPFI
TEI
ATSC
TZC
TDFCT
VC
FOCUS BIAS ADJ.
SFR101 47K
R106 4.7M
SFR102 100K
R118 1k
C114 0.01
C115 0.22
TP2 (TB)
TP3 (VREF)
C120 47/6.3 5L
C121 47/6.3 5L
C128 47/6.3 5L
R127 10
Q101 2SA1162GR LD DRIVE
C138 1000p
5V
SFR102 TRACKING BALANCE ADJ.
SFR103 TRACKING GAIN ADJ.
R124 1k
R129 15k
C129 2200p
R128 15k
R123 100k
SW101
INSIDE LIMIT SWITCH
M102 (SLED MOTOR)
C135 0.1
R133 10
M101 (SPINDLE MOTOR)
R130 10
C131 0.1
C127 47/16 5L
MOTOR/ COIL DRIVER
IC102 BA6791FP
VCC
VBIAS
IN
MUTE
VB
GND
R132 10
C134 0.1
C133 0.1
R131 10
R140 82kF
R141 47kF
R142 47kF
R143 47kF
R144 47kF
R145 82kF
R146 82
CON101
CN1
LD
PD
TRACKING COIL
FOCUS COIL
+2.5V
+5V
E D A B C F
PDIC
PICK UP ASSY KSS-213B
SIGNAL
ANALOG AUDIO
DIGITAL AUDIO
VIDEO
CONTROL

# WIRING-7 (V5: CD MECHA)


1
2
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A
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D
E
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G
H
I
J
K
PICK UP ASSY
CN1
FC4
B CD MECHA C.B
Q101
C127
IC102
CN101
IC101
FC4
16
1
10
5
M101
M101 (SPINDLE MOTOR)
SW101
SW101 (INSIDE LIMIT SWITCH)
M102
M102 (SLED MOTOR)
SFR101
SFR102
SFR103
TP2 (TB)
TP3 (VREF)
TP1 (RF)
C122
C120
C121
C123
C125
C128
CON102
12 FC2 1
FROM A MAIN C.B CON101

# IC DESCRIPTION

## IC, CXD2500BQ

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1 | FOK | I | Focus OK input terminal. Used for SENS output and servo auto sequencer. |
| 2 | FSW | O | Spindle motor output filter selection output. |
| 3 | MON | O | Spindle motor ON-OFF control output. |
| 4 | MDP | O | Spindle motor servo control. |
| 5 | MDS | O | Spindle motor servo control. |
| 6 | LOCK | O | H output when GFS is sampled at 460 Hz and GFS is H. L output when L is continuously 8 times. |
| 7 | NC | — | Not used. |
| 8 | VCOO | O | Oscillator circuit output for analog EFM PLL. |
| 9 | VCOI | I | Oscillator circuit input for analog EFM PLL. fLOCK = 8.6436 MHz. |
| 10 | TEST | I | TEST terminal. Normally GND. |
| 11 | PDO | O | Charge pump output for analog EFM PLL. |
| 12 | VSS | — | GND. |
| 13 | NC | — | Not used. |
| 14 | NC | — | Not used. |
| 15 | NC | — | Not used. |
| 16 | VPCO | O | Charge pump output for vari-pitch PLL. |
| 17 | VCKI | I | Clock input from external VCO for vari-pitch. fc center = 16.9344 MHz. |
| 18 | FILO | O | Filter output for master PLL (slave = digital PLL). |
| 19 | FILI | I | Filter input for master PLL. |
| 20 | PCO | O | Charge pump output for |
| 21 | AVSS | — | Analog GND. |
| 22 | CLTV | I | VCO control voltage input for master. |
| 23 | AVDD | — | Analog power supply. (+3.5 V) |
| 24 | RF | I | EFM signal input. |
| 25 | BIAS | I | Asymmetry circuit constant current input. |
| 26 | ASYI | I | Asymmetry comparate voltage input. |
| 27 | ASYO | O | EFM full swing output (L = Vss, H = VDD.) |
| 28 | ASYE | I | L: asymmetry circuit OFF, H: asymmetry circuit ON. |
| 29 | NC | — | Not used. |
| 30 | PSSL | I | Audio data output mode selection input. Serial output at L, parallel output at H. |
| 31 | WDCK | O | D/A interface for 48-bit slot. Word clock f = 2 Fs. |
| 32 | LRCK | O | D/A interface for 48-bit slot. LR clock f = Fs. |
| 33 | VDD |  | Power supply. (+3.5 V) |
| 34 | S DATA | O | DA16 (MSB) output when PSSL = H. 48-bit slot serial data when PSSL = L. (2's COMP, MSB first). |
| 35 | BCLK | O | DA15 output when PSSL = H. 48-bit slot bit clock when PSSL = L. |
| 36 | NC | O | DA14 output when PSSL = H. 64-bit slot serial data when PSSL = L. (2's COMP, MSB first). |
| 37 | NC | O | DA13 output when PSSL = H. 64-bit slot bit clock when PSSL = L. |
| 38 | NC | O | DA12 output when PSSL = H. 64-bit slot LR clock when PSSL = L. |

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 39 | GTOP | O | DA11 output when PSSL = H. GTOP output when PSSL = L. |
| 40 | XUGF | O | DA10 output when PSSL = H. XUGF output when PSSL = L. |
| 41 | XPLCK | O | DA09 output when PSSL = H. XPLCK output when PSSL = L. |
| 42 | GFS | O | DA08 output when PSSL = H. GFS output when PSSL = L. |
| 43 | RFCK | O | DA07 output when PSSL = H. RFCK output when PSSL = L. |
| 44 | C2PO | O | DA06 output when PSSL = H. C2P0 output when PSSL = L. |
| 45 | XRAOF | O | DA05 output when PSSL = H. XRAOFoutput when PSSL = L. |
| 46 | MNT3 | O | DA04 output when PSSL = H. MNT3 output when PSSL = L. |
| 47 | MNT2 | O | DA03 output when PSSL = H. MNT2 output when PSSL = L. |
| 48 | MNT1 | O | DA02 output when PSSL = H. MNT1 output when PSSL = L. |
| 49 | MNT0 | O | DA01 output when PSSL = H. MNT0 output when PSSL = L. |
| 50 | APTR | O | Aperture correction control output. H when R channel. |
| 51 | APTL | O | Aperture correction control output. H when L channel. |
| 52 | VSS | — | GND. |
| 53 | XTAI | I | Input to 16.9344 MHz X'tal oscillator circuit. or 33.8688 MHz input. |
| 54 | XTAO | O | 16.9344 MHz X'tal oscillator output. |
| 55 | XTSL | I | X'tal selection input. L when X'tal is 16.9344 MHz. H when 33.8688 MHz. |
| 56 | FSTT | O | 2/3 divider output of the pins 53 and 54. Does not change with vari-pitch. |
| 57 | C4M | O | 4.2336 MHz output. When vari-pitch is performed, it changes too. |
| 58 | C16M | O | 16.2336 MHz output. When vari-pitch is performed, it changes too. |
| 59 | MD2 | I | Digital-out ON/OFF control. ON at H, OFF at L. |
| 60 | DOUT | O | Digital-out terminal. |
| 61 | EMPH | O | H output when the playback disc has emphasis. L output without emphasis. |
| 62 | WFCK | O | WFCK (Write Frame Clock) output. |
| 63 | SCOR | O | H output when S0 or S1 of the subcode sync is detected. |
| 64 | SBSO | O | Serial output of Sub P to W. |
| 65 | EXCK | I | Clock input for SBSO read out. |
| 66 | SQSO | O | SubQ 8-bit and PCM peak level data. 16-bit output. |
| 67 | SQCK | I | Clock input for SQSO readout. |
| 68 | MUTE | I | Mute at H. Release at L. |
| 69 | SENS | O | SENS output. Output to CPU. |
| 70 | XRST | I | System reset. Reset at L. |
| 71 | DATA | I | Serial data input from CPU. |
| 72 | XLAT | I | Latch input from CPU. Latches serial data at fall-down edge. |
| 73 | VDD | — | Power supply (+3.5 V). |
| 74 | CLOK | I | Serial data transfer clock input from CPU. |
| 75 | SEIN | I | Sensor input from SSP. |
| 76 | CNIN | I | Track jump number counted signal input. |
| 77 | DATO | O | Serial data output to SSP. |
| 78 | XLTO | O | Serial data latch output to SSP. Latches at fall-down edge. |
| 79 | CLKO | O | Serial data transfer clock output to SSP. |
| 80 | MIRR | I | Mirror signal input. Used for jump of 128 track or more at auto sequencer. |

## IC, µPD78044BGF

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1 | DO ON | O | Digital output. ON/OFF output. |
| 2~7 | NC | — | Not used. |
| 8 | VDD | — | PWR. +5 V power supply. |
| 9 | CM CLK | I/O | Serial clock I/O. |
| 10 | C DATA | O | Serial data output. |
| 11 | M DATA | I | Serial data input. |
| 12 | O-CLK | O | DSP serial clock output. |
| 13 | O-XLT | O | DSP serial latch output. |
| 14 | O-SQCLK | O | DSP sub Q read-out clock output. |
| 15 | O-DATA | O | DSP serial data output. |
| 16 | I-SQDATA | I | DSP sub Q data input. |
| 17 | $\overline{\text{RESET}}$ | I | System reset input. |
| 18 | I-SENS | I | DSP SENS input. |
| 19 | XRST | O | CD system reset output. |
| 20 | AVSS | — | PWR. GND potential of A/D converter input. |
| 21 | I-FOK | I | ASP FOK input. |
| 22 | I-GFS | I | DSP GFS input. |
| 23 | — | — | Connected GND. |
| 24 | I-ILSW | I | Pickup limit switch input. |
| 25 | I-OCSW | I | Tray OPEN/CLOSE switch input. |
| 26~28 | — | — | Connected GND. |
| 29 | AVDD | — | PWR. Analog power supply of A/D converter input. |
| 30 | AVREF | I | PWR. Reference voltage input of A/D converter input. |
| 31 | — | — | Connected GND. |
| 32 | NC | — | Open terminal. |
| 33 | VSS | — | PWR. GND potential. |
| 34 | X1 | I | CLK. Terminal for 4.19 MHz clock oscillator. |
| 35 | X2 | O | CLK. Terminal for 4.19 MHz clock oscillator. |
| 36~38 | NC | — | Not used. |
| 39 | $\overline{\text{C-BUSY}}$ | O | MPEG status output. |
| 40 | MSTBY | I | Main microprocessor status input. |
| 41 | CLOCK | O | Main microprocessor serial clock output. |
| 42 | DATA | O | Main microprocessor serial data output. |
| 43 | D-REQ | O | Main microprocessor status output. |
| 44 | I-KEY | I | Main microprocessor serial data input. |
| 45 | SCOR | I | DSP SCOR input. |
| 46 | $\overline{\text{M-BUSY}}$ | I | MPEG status signal input. |
| 47 | — | — | Connected GND. |
| 48 | IC | — | PWR. Connected to Vss. |
| 49 | MUTE L | O | L channel analog mute output. |
| 50 | MUTE R | O | R channel analog mute output. |

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 51 | DSENS | I | Turntable sensor input. |
| 52 | VDD | — | PWR. +5 V power supply. |
| 53～64 | NC | — | Not used. |
| 65 | O-TOPN | O | Tray OPEN output. |
| 66 | O-CLS | O | Tray CLOSE output. |
| 67 | O-DFWD | O | Turntable forward rotation output. |
| 68 | O-DRVS | O | Turntable reverse rotation output. |
| 69, 70 | NC | — | Not used. |
| 71 | VLOAD | — | PWR. -27 V power supply for FL pull-down. |
| 72～76 | NC | — | Not used. |
| 77 | VCD | O | VIDEO CD selection output. |
| 78 | $\overline{\text{CD FUNC}}$ | O | CD function selection output. |
| 79 | G-MUT | O | CDG mute output. |
| 80 | CD ON | O | FL. Digit output for FL display. |

## IC, LC7872E

| Pin No. | Pin name | I/O | Description |
|---|---|---|---|
| 1, 2 | S1, S2 | — | DSP select pin for CD. (Connected to VDD) |
| 3 | SBCK | O | Subcode read/write clock. |
| 4 | SFSY | I | Subcode frame sync signal. |
| 5 | PW | I | Subcode read/write data. |
| 6 | SBSY | I | Subcode block sync signal. |
| 7 | VDD1 | — | Power supply for digital block. (Connected to +5V) |
| 8 | CE | I | Control pin when serial input or serial output. (Connected to GND) |
| 9 | DO | O | Serial data output. (Connected to GND) |
| 10 | DI | I | Serial data input. (Connected to GND) |
| 11 | CL | I | Clock when inputting/outputting serial data. (Connected to GND) |
| 12 | MUTE | I | Control signal disabling the subcode. |
| 13 | VSS1 | — | GND for digital block. |
| 14 | $\overline{\text{WE}}$ | O | DRAM control pin. |
| 15 | $\overline{\text{RAS}}$ | O | DRAM control pin. |
| 16～23 | A0～A7 | O | DRAM address pin. |
| 24 | DB0 | I/O | DRAM data pin. |
| 25 | $\overline{\text{CAS}}$ | O | DRAM control pin. |
| 26 | DB1 | I/O | DRAM data pin. |
| 27 | $\overline{\text{DE}}$ | O | DRAM control pin. |
| 28 | DB2 | I/O | DRAM data pin. |
| 29 | DB3 | I/O | DRAM data pin. |
| 30 | CE | I | "L": Normal mode "H": Color bar output (Not used) |
| 31 | CDGM | O | "H" output when CDG disk. (Not used) |
| 32 | TRANS0 | O | Transparency digital output. (Not used) |
| 33 | TRANS1 | O | Transparency digital output. (Not used) |
| 34 | TRANS2 | O | Transparency digital output. (Not used) |
| 35 | TRANS3 | O | Transparency digital output. (Not used) |
| 36 | TRANS4 | O | Transparency digital output. (Not used) |
| 37 | TRANS5 | O | Transparency digital output. (Not used) |
| 38 | VSS2 | — | Composite video DAC GND pin. |
| 39 | VDD2 | — | Composite video DAC power supply pin. (Connected to +5V) |
| 40 | BIAS | O | Capacitor connecting pin for eliminating ripple. |
| 41 | VIDEO | O | Composite video output pin (8-bit DAC output). |
| 42 | TEST | I | Test pin. Set to "L" normally. (Connected to GND) |
| 43 | LINE | I | When NP2 pin is "H": H: 263H L: 262H<br>When NP2 pin is "L": H: 312H L: 314H (Not used) |
| 44 | FSCIN | I | Subcarrier clock input pin. (feedback resistor is built in) (Connected to GND) |
| 45 | VSYNC | O | Vertical sync signal output pin. (Not used) |
| 46 | TEST1 | I | Test pin. Set to "L" normally. (Connected to GND) |
| 47 | YS | O | Superimpose control output. (Not used) |
| 48 | $\overline{\text{CSTNC}}$ | O | Composite sync signal output. (Not used) |

| Pin No. | Pin name | I/O | Description |
|---|---|---|---|
| 49 | GND | — | GND. |
| 50 | EFLG | O | Error status monitor pin. (Not used) |
| 51 | FSX | O | For error status monitor trigger. (Not used) |
| 52 | DEN | I | Disk information display enable. H: BGC L: Enable (Connected to GND) |
| 53 | PALID | I | External control pin when superimposing with PAL (pull-up resistor is built in). (Not used) |
| 54 | VDD3 | — | Digital power supply (+5V) |
| 55 | FSC | O | Subcarrier clock output. NTSC mode: 3.579545 MHz<br>PAL mode: 4.433619 MHz (Not used) |
| 56 | VDD4 | — | Digital power supply (+5V) |
| 57 | $\overline{\text{RESET}}$ | I | Reset input pin. |
| 58 | N/$\overline{\text{P}}$1 | I | NTSC/PAL selection pin. (RGB encoder) "H": NTSC "L": PAL |
| 59 | N/$\overline{\text{P}}$2 | I | NTSC/PAL selection pin. (CD-G decoder) "H": NTSC "L": PAL |
| 60 | SON | I | Superimpose ON/OFF pin. (Connected to GND) |
| 61 | XIN2 | I | Crystal oscillator 17.734476 MHz. (for PAL) |
| 62 | XOUT2 | O | Crystal oscillator 17.734476 MHz. (for PAL) |
| 63 | XIN1 | I | Crystal oscillator connection 14.31818 MHz. (for NTSC) |
| 64 | XOUT1 | O | Crystal oscillator connection 14.31818 MHz. (for NTSC) |

## IC, CXA1782BQ

| Pin No. | Pin name | I/O | Description |
|---|---|---|---|
| 1 | FEO | O | Focus error amplifier output pin. This pin is connected to the FZC comparator input internally. |
| 2 | FEI | I | Focus error input pin. |
| 3 | FDFCT | I | Capacitor connection pin for time constant used when there is defect. |
| 4 | FGD | I | This pin is connected to GND via capacitor when high frequency gain of the focus servo is attenuated. |
| 5 | FLB | I | This is a pin where the time constant is externally connected to raise the low frequency gain of the focus servo. |
| 6 | FEO | O | Focus drive output. |
| 7 | FEM | I | Focus amplifier inverted input pin. |
| 8 | SRCH | I | This is a pin where the time constant is externally connected to generate the focus search waveform. |
| 9 | TGU | I | This is a pin where the selection time constant is externally connected to set the tracking servo the high frequency gain. |
| 10 | TG2 | I | This is a pin where the selection time constant is externally connected to set the tracking high frequency gain. |
| 11 | FSET | I | Pin for setting peak of the phase compensator of the focus tracking. |
| 12 | TAM | I | Tracking amplifier inverted input pin. |
| 13 | TAO | O | Tracking drive output. |
| 14 | SLP | I | Sled amplifier non-inverted input pin. |
| 15 | SLM | I | Sled amplifier inverted input pin. |
| 16 | SLO | O | Sled drive output. |
| 17 | ISET | I | The current which determines height of the focus search, track jump and sled kick is input. |
| 18 | VCC | — | + 5 V power supply pin. |
| 19 | CLK | I | Serial data transfer clock input from CPU. |
| 20 | XLT | I | Latch input from CPU. |
| 21 | DATA | I | Serial data input from CPU . |
| 22 | XRST | I | Reset input pin. Reset at L. |
| 23 | COUT | O | Signal output to count the number of tracks. |
| 24 | SENS | O | FZC, DFCT, TZC, Gain or BAL is output depending on the command from CPU . |
| 25 | FOK | O | Output pin of the focus OK comparator. |
| 26 | CC2 | O | Input pin where the DEFECT bottom hold output is capacitance coupled. |
| 27 | CC1 | I | DEFECT bottom hold output pin. |
| 28 | CB | I | This is a pin where the DEFECT bottom hold capacitor is connected. |
| 29 | CP | I | This is a pin where the MIRR hold capacitor is connected and MIRR comparator non-inverted signal is input. |
| 30 | RFI | I | Input pin where the RF summing amplifier output is capacitance coupled. |
| 31 | RFO | O | RF summing amplifier output pin. (Eye pattern check point) |
| 32 | RFM | I | RF summing amplifier inverted input pin. Gain of RF amplifier is determined by the resistor connected between RFO and this pin. |

| Pin No. | Pin name | I/O | Description |
|---|---|---|---|
| 33 | LD | O | APC amplifier output pin. |
| 34 | PHD | I | APC amplifier input pin. |
| 35~36 | PHD1~2 | I | RF I-V amplifier inverted input pin.<br>These pins are connected to the A+C and B+D pins of the optical pickup. |
| 37 | FE BIAS | I | Bias adjustment pin of the focus error amplifier. |
| 38~39 | F~E | I | F and E IV amplifier non-inverted input pins.<br>These pins are connected to the F and E of the optical pickup. |
| 40 | EI | — | Gain adjustment pin of the I-V amplifier E. |
| 41 | VEE | — | GND connection pin |
| 42 | TEO | O | Tracking error amplifier output pin. E-F signal is output. |
| 43 | LPFI | I | BAL adjustment comparator input pin. |
| 44 | TEI | I | Tracking error input pin. |
| 45 | ATSC | I | Window comparator input pin for detecting ATSC. |
| 46 | TZC | I | Tracking zero-cross comparator input pin. |
| 47 | TDFCT | I | Capacitor connection pin for the time constant used when there is defect. |
| 48 | VC | O | DC voltage output pin of VREF. (VDD/2) |

## IC, CL480

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1 | HSEL2 | I | Host address bus. |
| 2 | -DS | I | Data strobe. |
| 3 | R/-W | I | Read/write. |
| 4 | CFLEVEL | O | Coded data FIFO level status. Open drain. |
| 5 | -DACK | O | Host data acknowledge. Open drain. |
| 6 | HD0 | I/O | Host data bus. |
| 7 | VDD3 | — | Power supply pin. Used in 3.3 V. |
| 8, 9 | HD1, HD2 | I/O | Host data bus. |
| 10 | VSS | — | GND. |
| 11~15 | HD3~HD7 | I/O | Host data bus. |
| 16 | VSS | — | GND. |
| 17 | -TEST | I | Test terminal. Normally fixed to High. |
| 18 | VSS | — | GND. |
| 19 | XTL IN | I | Global clock. 40.5 MHz. |
| 20 | XTL OUT | O | Global clock. 40.5 MHz. |
| 21, 22 | VDD3 | — | Power supply pin. Used in 3.3 V. |
| 23~28 | MD0~MD5 | I/O | Memory data bus. |
| 29 | VDD3 | — | Power supply pin. Used in 3.3 V. |
| 30, 31 | MD6, MD7 | I/O | Memory data bus. |
| 32, 33 | -MCE0, -MCE1 | O | Chip enable. |
| 34~37 | MD8~MD11 | I/O | Memory data bus. |
| 38 | VSS | — | GND. |
| 39~42 | MD12~MD15 | I/O | Memory data bus. |
| 43 | VDDMAX | — | Power supply pin. Used in 5.0 V. |
| 44 | -LCAS | O | Lower digit, column address strobe. |
| 45 | -LCASIN | I | Lower digit, data latch enable. |
| 46 | VSS | — | GND. |
| 47 | -MWE | O | Write enable. |
| 48 | -UCAS | O | Higher digit, column address strobe. |
| 49 | VDD3 | — | Power supply pin. Used in 3.3 V. |
| 50 | -UCASIN | I | Higher digit, data latch enable. |
| 51, 52 | RAS0, RAS1 | O | Lower address strobe. |
| 53~57 | MA9~MA5 | O | Memory address bus. |
| 58 | VSS | — | GND. |
| 59~63 | MA4~MA0 | O | Memory address bus. |
| 64 | RESERVED | — | Reserved. |
| 65 | VDD3 | — | Power supply pin. Used in 3.3 V. |
| 66~72 | VD0~VD6 | O | Pixel data bus. RGB or YCbCr format. |
| 73 | VSS |  | GND. |
| 74~76 | VD7~VD9 | O | Pixel data bus. RGB or YCbCr format. |
| 77 | VDD3 | — | Power supply pin. Used in 3.3 V. |

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 78~80 | VD10~VD12 | O | Pixel data bus. RGB or YCbCr format. |
| 81 | VDD3 |  | Power supply pin. Used in 3.3 V. |
| 82~84 | VD13~VD15 | O | Pixel data bus. RGB or YCbCr format. |
| 85 | VSS | — | GND. |
| 86~89 | VD16~VD19 | O | Pixel data bus. RGB or YCbCr format. |
| 90 | VSS | — | GND. |
| 91~94 | VD20~VD23 | O | Pixel data bus. RGB or YCbCr format. |
| 95 | -VSYNC or CSY | I/O | Vertical sync signal. |
| 96 | -HSYNC | I/O | Horizontal sync signal. |
| 97 | -VOE | I | Video output enable. |
| 98 | VDD3 | — | Power supply pin. Used in 3.3 V. |
| 99 | VCLK | I/O | Video clock. |
| 100 | VSS | — | GND. |
| 101 | -RESET | I | Hardware reset. |
| 102 | VSS | — | GND. |
| 103 | CD-C2PO | I | Data error. Used during CD-ROM data input. |
| 104 | CD-LRCK | I | LR clock. |
| 105 | CD-DATA | I | Serial data input from CD-DSP. |
| 106 | CD-BCK | I | Bit clock from CD decoder. |
| 107 | DA-LRCK | O | LR clock. |
| 108 | DA-DATA | O | Bit serial audio sample signal. |
| 109 | DA-BCK | O | Audio bit clock. |
| 110 | VDD3 | — | Power supply pin. Used in 3.3 V. |
| 111 | DA-XCLK | I | External audio frequency clock. |
| 112 | VDD3 | — | Power supply pin. Used in 3.3 V. |
| 113 | -INT | O | Interrupt request. |
| 114 | RESERVED | — | Reserved. |
| 115 | HOST_ENA | I | Host enable. |
| 116 | RAM_ENA | I | Boot ROM enable. |
| 117 | RESERVED | — | Reserved. |
| 118 | DAC_EMP | O | Output emphasis flag. |
| 119 | CDDA_EMP | I | Input emphasis flag. |
| 120 | RESERVED | — | Reserved. |
| 121 | -FMV_DET | O | FMV detection. L: FMV detected. |
| 122 | CDDA/VCD | O | Input data identification. H: CDDA. L: video CD. |
| 123 | VDDMAX | I | Power supply pin. Used in 5.0 V. |
| 124 | RESERVED | — | Reserved. |
| 125 | VSS | — | GND. |
| 126 | RESERVED | — | Reserved. |
| 127, 128 | HSEL0, HSEL1 | I | Host address bus. |

## IC, CXD1178Q

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1~8 | R0~R7 | I | Digital input. |
| 9~16 | G0~G7 | | |
| 17~24 | B0~B7 | | |
| 25 | BLK | I | Blanking pin. No signal at "H" (Output 0V). Output condition at "L". |
| 26 | $\overline{\text{CE}}$ | I | Chip enable pin. No signal (Output 0V) at "H" and minimizes power consumption. |
| 27 | RCK | I | Clock pin. Moreover all input pins are TTL-CMOS compatible. |
| 28 | GCK | | |
| 29 | BCK | | |
| 30, 31 | DVSS | — | Digital GND. |
| 32 | VB | O | Connect a capacitor of about 0.1μF. |
| 33 | AVSS | — | Analog GND. |
| 34 | VREF | I | Set full scale output value. |
| 35 | IREF | I | Connect a resistance 16 times "16R" that of output resistance value "R". |
| 36 | $\overline{\text{RO}}$ | O | Inverted current output pin. Normally dropped to analog GND. |
| 37 | RO | O | Current output pin. Voltage output can be obtained by connecting a resistance. |
| 38 | $\overline{\text{GO}}$ | O | Inverted current output pin. Normally dropped to analog GND. |
| 39 | GO | O | Current output pin. Voltage output can be obtained by connecting a resistance. |
| 40 | $\overline{\text{BO}}$ | O | Inverted current output pin. Normally dropped to analog GND. |
| 41 | BO | O | Current output pin. Voltage output can be obtained by connecting a resistance. |
| 42 | VG | I | Connect a capacitor of about 0.1μF. |
| 43~46 | AVDD | — | Analog VDD. |
| 47, 48 | DVDD | — | Digital VDD. |

## IC, MC68HC705

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1 | RST | I | Reset. |
| 2 | IRQ | I | MPEG DECODER request signal. |
| 3 | VPP | — | ROM write power. |
| 4~11 | PA7~PA0 | I/O | MPEG DECODER data bus 7~0. |
| 12~14 | PB0~PB2 | O | MPEG DECODER register select 0~2. |
| 15 | PB3 | O | MPEG DECODER data R/W select. |
| 16 | PB4 | O | MPEG DECODER data strobe. |
| 17 | PB5 | I | MPEG DECODER data acknowledge. |
| 18 | PB6 | I | CD-I bit stream detect. |
| 19 | PB7 | I | CD DA/VCO select. |
| 20 | VSS | — | Power ground. |
| 21 | PC7 | I | MPEG DECODER FIFO status. |
| 22, 23 | PC6, PC5 | — | Not used. |
| 24 | PC4 | O | MPEG DECODER reset signal. |
| 25, 26 | PC3, PC2 | — | Not used. |
| 27, 28 | PC1, PC0 | O | Key scan out 1, 0. |
| 29 | RDI | — | Not used. |
| 30 | TD$\overline{O}$ | | |
| 31~34 | PD2~PD5 | I | Key scan input 0~3. |
| 35 | TCMP | O | Remote data out. |
| 36 | PD7 | — | Not used. |
| 37 | CAP | I | Remote data in. |
| 38, 39 | OSC2, OSC1 | I | X_tal in. |
| 40 | VDD | — | Power 5V. |

## IC, µPD6376

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1 | FS-SEL | I | As this terminal is "Low" or open, L-ch data and R-ch data are inputted for serial data by the pin 15. As this terminal is "High", L-ch data is inputted by the pin 15, R-ch data is inputted by the pin 14. (Pull-downed by the 100 kΩ resistance in IC.) |
| 2 | D. GND | — | Ground terminal for the logic circuit. |
| 3 | NC | — | — |
| 4 | D. VDD | — | Power supply terminal for the logic circuit . |
| 5 | A. GND | — | Ground terminal for the analog circuit. |
| 6 | R. OUT | O | Output terminal for the right analog signal. |
| 7, 8 | A. VDD | — | Power supply terminal for the analog circuit. |
| 9, 10 | R. REF, L. REF | — | Operational Amplifier reference bias terminal. Normally connected to A.GND via a capacitor. |
| 11 | L. OUT | O | Output terminal for the left analog signal. |
| 12 | A. GND | — | Ground terminal for the analog circuit. |
| 13 | LRCK | I | As the pin 1 is "Low" or open, this is input terminal for left/right identification signal. As the pin 1 is "High", this is input terminal for word identification signal of input data. |
| 14 | LRSEL | I | As the pin 1 is "Low" or open, this is left/right selection terminal for LRCK signal. At "High" of LRCK signal, set LRSEL pin at "Low" for L-ch DATA input. At "Low" of LRCK signal, set LRSEL pin at "High" for L-ch DATA input. As the pin 1 is "High", this is input terminal for R-ch serial data. |
| 15 | DATA | I | As the pin 1 is "Low" or open, this is input terminal for L-ch and R-ch serial data. As the pin 1 is "High", this is input terminal for L-ch serial data. |
| 16 | BCK | I | Input terminal for read clock of serial input data. |

## IC, CXA1645M

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1 | GND | — | GND. |
| 2 | RIN | I | Analog RGB input terminals. |
| 3 | GIN | | |
| 4 | BIN | | |
| 5 | NC | — | N. C. |
| 6 | SCIN | I | Subcarrier input terminal. |
| 7 | NPIN | I | NTSC, PAL mode select terminal. NTSC: Vcc, PAL: GND. |
| 8 | BFOUT | O | Output terminal to monitor the BF pulse. Unable to drive 75 Ω load. |
| 9 | YCLPC | — | External time constant for Y signal clamp is connected to this terminal. |
| 10 | SYNCIN | I | Composite sync signal input terminal. Input at TTL level.<br>SYNC period at L ( $\leqq$ 0.8 V). H ( $\geqq$ 2.0 V). |
| 11 | NC | — | N. C. |
| 12 | VCC | — | Power supply terminal. |
| 13 | IREF | | Terminal which determines internal reference current. |
| 14 | VREF | — | Internal reference voltage terminal. |
| 15 | COUT | O | Chroma signal output terminal. |
| 16 | YOUT | O | Y signal output terminal. |
| 17 | YTRAP | I | Terminal to reduce cross-color due to subcarrier frequency component included in the Y signal. |
| 18 | FO | I | fo adjustment terminal of internal filter. The following resistor is connected between GND depending upon NTSC or PAL mode.<br>NTSC: 20 kΩ (±1%) PAL: 16 kΩ (±1%). |
| 19 | VCC | — | Power supply terminal. |
| 20 | CVOUT | O | Composite video signal output terminal. |
| 21 | BOUT | O | Analog RGB signal output terminal |
| 22 | GOUT | | |
| 23 | ROUT | | |
| 24 | GND | — | GND. |

## IC, HD6433042F06F

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1 | VCC | I | Power supply. |
| 2 | CDG DIN | O | CD-G decoder serial data signal. |
| 3 | CDG XLT | O | CD-G decoder latch signal. |
| 4 | CDG CLK | O | CD-G decoder clock signal. |
| 5~7 | GADSP0~2 | O | Gate array DSP format 0~2. |
| 8 | $\overline{\text{DRQ CDDEC}}$ | I | CD-ROM decoder data request signal. |
| 9 | $\overline{\text{DRQ MPEG}}$ | I | MPEG decoder data request signal. |
| 10 | $\overline{\text{RESO}}$ | O | External reset output. |
| 11 | GND | I | GND. |
| 12 | TXD0 | O | Serial interface (RXD). |
| 13 | TXD1 | O | CXD for test. |
| 14 | RXD0 | I | Serial interface (RXD). |
| 15 | RXD1 | I | RXD for test. |
| 16 | SCK0 | I/O | Serial interface (SCK). |
| 17 | $\overline{\text{MPRST}}$ | O | Peripheral reset. L: RESET ON. |
| 18~21 | D0~D3 | I/O | Data bus 0~3. |
| 22 | GND | I | GND. |
| 23~34 | D4~D15 | I/O | Data bus 4~15. |
| 35 | VCC | I | Power supply. |
| 36~43 | A0~A7 | O | Address bus 0~7. |
| 44 | GND | I | GND. |
| 45~56 | A8~A19 | O | Address bus 8~19. |
| 57 | GND | I | GND. |
| 58 | $\overline{\text{WAIT}}$ | I | External wait signal. |
| 59 | GLUE ON | O | DMA glue circuit enable 0: OFF. 1: ON. |
| 60 | M EMPH | O | MPEG AUDIO emphasis 0: OFF. 1: ON. |
| 61 | FAI | O | System clock output. |
| 62 | $\overline{\text{STBY}}$ | I | Standby. (Hardware standby mode at low level). |
| 63 | $\overline{\text{RES}}$ | I | Reset input. (Reset at low). |
| 64 | NMI | I | Non-maskable interrupt. (Non-maskable interrupt is requested). |
| 65 | GND | I | GND. |
| 66 | EXTAL | I | External crystal is connected to this pin. |
| 67 | XTAL | I | External crystal is connected to this pin. |
| 68 | VCC | I | Power supply. |
| 69 | $\overline{\text{AS}}$ | O | Address strobe signal. |
| 70 | $\overline{\text{RD}}$ | O | External address read enable signal. |
| 71 | $\overline{\text{HWR}}$ | O | External address high write enable signal. |
| 72 | $\overline{\text{LWR}}$ | O | External address low write enable signal. |
| 73~75 | MOD0~MOD2 | I | Mode terminal. Operating mode is set using this terminal. |
| 76 | AVCC | I | Power supply terminal of A/D converter and D/A converter. |
| 77 | VREF | I | Reference voltage input to A/D converter and D/A converter. |

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 78, 79 | P70, P71 | I | IN port 0, 1 for test. |
| 80 | PAL/$\overline{\text{NTSC}}$ | I | PAL/NTSC status 0: NTSC. 1: PAL. |
| 81 | $\overline{\text{REQ CD}}$ | I | Serial interface (REQ_CD). |
| 82~85 | P74~P77 | I | Reserve. |
| 86 | AGND | I | GND terminal of A/D converter and D/A converter. |
| 87 | $\overline{\text{INT CDDRV}}$ | I | Serial interface interrupt. |
| 88 | $\overline{\text{INT CDDEC}}$ | I | CD-ROM decoder interrupt. |
| 89 | $\overline{\text{INT MPEG}}$ | I | MPEG decoder interrupt. |
| 90 | $\overline{\text{IRQ3}}$ | I | Reserve. |
| 91 | P84 | I | Reserve. |
| 92 | GND | I | GND. |
| 93 | $\overline{\text{DONE CDDEC}}$ | O | CD-ROM decoder DONE signal. |
| 94 | $\overline{\text{DONE MPEG}}$ | O | MPEG decoder DONE signal. |
| 95 | CDG VOFF | O | CD-G decoder video OFF signal. 1: VOFF. |
| 96 | SYS MUTE1 | O | Audio mute 1 signal. 1: mute ON. |
| 97 | INTFLDO | I | EVEN/OFF input signal. 0: EVEN. 1: 0DD. |
| 98 | SW AUDIO | O | Audio select signal. 0: CD-G/DA. 1: MPEG. |
| 99 | $\overline{\text{SYS MUTE0}}$ | O | Audio mute 0 signal. 0: mute on. |
| 100 | $\overline{\text{REQ MPEG}}$ | O | Serial interface (REQ MPEG) |

## IC, µPD65622GF-239-3B9

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1 | LRCKCD | O | Main data signal to CXD1186. |
| 2 | SDATACD | O | |
| 3 | BCKCD | O | |
| 4 | C2POCD | O | |
| 5 | $\overline{\text{CSROMH}}$ | O | Chip select signal to CXD1186 (host side). |
| 6 | $\overline{\text{CSROMC}}$ | O | Chip select signal to CXD1186 (CPU side). |
| 7 | $\overline{\text{DACKROM}}$ | O | DMA acknowledge signal to CXD1186. |
| 8 | HDRQ | I | Data transfer request signal from CXD1186. This signal is active high. |
| 9 | $\overline{\text{ROMRD}}$ | O | Read/write signal to CXD1186. |
| 10 | $\overline{\text{ROMWR}}$ | O | Read/write signal to CXD1186. |
| 11 | EMPHI | I | This signal allows inputting the main data from the CD drive. |
| 12 | GND | — | GND. |
| 13 | SDATAI | I | This signal allows inputting the main data from the CD drive. |
| 14 | BCKI | I | |
| 15 | LRCKI | I | |
| 16 | C2POI | I | |
| 17 | GND | — | GND. |
| 18 | 16.9M | I | 16.9344 MHz oscillator circuit input signal. |
| 19 | 16.9F | O | 16.9344 MHz oscillator circuit output signal. |
| 20 | GND | — | GND. |
| 21 | GSFSY | I | Write frame clock signal used to input the sub data from CD drive. |
| 22 | EMPO | O | Main data signal to CXD1186. |
| 23 | LRCKO | O | Audio data signal to audio DAC. |
| 24 | SDATAO | O | Audio data signal to audio DAC. |
| 25 | RESET | O | Active high reset signal. |
| 26 | GND | — | GND. |
| 27 | BCKCO | O | Audio data signal to audio DAC. |
| 28 | $\overline{\text{GGLUE}}$ | I | The input signal which makes the glue circuit valid from GSFSY input. |
| 29 | $\overline{\text{GGSFSY}}$ | O | Not used. |
| 30 | SDATAMA | I | Audio data signal from µPD61010. |
| 31 | BCKMA | I | |
| 32 | LRCKMA | I | |
| 33 | GND | — | GND. |
| 34 | VCC | — | Vcc. |
| 35 | $\overline{\text{16.9M}}$ | O | 16.9344 MHz output signal. |
| 36 | GND | — | GND. |
| 37 | $\overline{\text{DS}}$ | O | Control signal to µPD61010. |
| 38 | $\overline{\text{CSMPEG}}$ | O | Chip select signal to CXD1186. |
| 39 | $\overline{\text{R/W}}$ | O | Control signal to µPD61010. |
| 40 | INT | I | Interrupt request signal from µPD61010. This signal is active high. |
| 41 | $\overline{\text{HDAK}}$ | I | Data acknowledge signal from µPD61010. |

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 42 | $\overline{\mathrm{DREQ}}$ | I | DRAM data transfer request signal from µPD61010. |
| 43 | $\overline{\mathrm{DACKMP}}$ | O | DMA acknowledge signal to µPD61010. |
| 44 | $\overline{\mathrm{DAK}}$ | I | Bit stream data transfer request signal from µPD61010. |
| 45 | $\overline{\mathrm{CSCELL}}$ | O | Chip select signal to standard cell. |
| 46 | GND | — | GND. |
| 47 | $\overline{\mathrm{RESET}}$ | I | System reset signal. |
| 48 | GND | — | GND. |
| 49 | $\overline{\mathrm{CSRAM}}$ | O | Chip select signal to the system RAM. |
| 50 | $\overline{\mathrm{LWR}}$ | I | Lower data write signal from CPU. |
| 51 | $\overline{\mathrm{HWR}}$ | I | Upper data write signal from CPU. |
| 52 | $\overline{\mathrm{RD}}$ | I | Data read signal from CPU. |
| 53 | GND | — | GND. |
| 54 | $\overline{\mathrm{AS}}$ | I | Address strobe signal from CPU. |
| 55 | $\overline{\mathrm{CSIO}}$ | O | Optional chip select signal. |
| 56~63 | A19~A12 | I | Address signal from CPU. |
| 64 | GND | — | GND. |
| 65 | $\overline{\mathrm{WAIT}}$ | O | Wait signal to CPU. |
| 66 | GLUEON | I | This signal makes the glue logic valid in order to prevent CPU DMAC from trouble.<br>This circuit is made valid at high. |
| 67 | $\overline{\mathrm{SEL12}}$ | I | Input signal to select 12 MHz or 16 MHz CPU clock. |
| 68 | EMPMA | I | Audio data signal from µPD61010. |
| 69 | GND | — | GND. |
| 70 | FAI | I | Basic clock signal (12 MHz) from CPU. |
| 71 | GND | — | GND. |
| 72 | VCC | — | Vcc. |
| 73 | GND | — | GND. |
| 74 | $\overline{\mathrm{INTMPEG}}$ | O | Interrupt request signal to CXD1186. |
| 75 | SWAUDIO | I | Selection signal between MPEG audio and CD-DA audio signals. |
| 76 | $\overline{\mathrm{DRQI}}$ | O | DMA transfer request signal to µPD61010. |
| 77 | $\overline{\mathrm{DRQ0}}$ | O | DMA transfer request signal to CXD1186. |
| 78~80 | GADSP2~0 | I | Format select signal to convert format of the main data from CD drive. |

## IC, CXD1186CR

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1~4 | A0~A3 | I | CPU address signal. |
| 5 | HMDS | I | Host mode select signal. |
| 6, 7 | HA0, HA1 | I | Host address signal. |
| 8 | XHCS | I | Chip select negative logic signal from the host. |
| 9 | HINT | O | Interrupt request negative logic signal to the host. |
| 10 | GND | — | GND. |
| 11 | XHRD | I/O | Data read strobe signal from the host or to the SCSI control IC. |
| 12 | XHWR | I/O | Data write strobe signal from the host or to the SCSI control IC. |
| 13~20 | HDB0~HDB7 | I/O | Host data bus. |
| 21 | GND | — | GND. |
| 22 | HDBP | I/O | Error flag. Host data bus. |
| 23 | XRST | I | Reset negative logic signal. |
| 24 | HDRQ | O | Data request positive logic signal to the host. Or DMA acknowledge negative logic signal to the SCSI control IC. |
| 25 | XHAC | I | DMA acknowledge negative logic signal from the host Or data request positive logic signal from the SCSI control. |
| 26 | XTC | I | Terminal count negative logic signal. |
| 27 | ADRQ | I | DMA request positive logic signal from ADP. |
| 28 | XAAC | O | DMA acknowledge negative logic signal to ADP. |
| 29, 30 | BA0, BA1 | O | Buffer memory address. |
| 31 | VDD | — | Power supply (+5 V) terminal. |
| 32~39 | BA2~BA9 | O | Buffer memory address. |
| 40 | GND | — | GND. |
| 41~46 | BA10~BA15 | O | Buffer memory address. |
| 47 | XMOE | O | Buffer memory output enable negative logic signal. |
| 48 | XMWR | O | Buffer memory write negative logic signal. |
| 49 | BDB0 | I/O | Buffer memory data bus. |
| 50 | GND | — | GND. |
| 51~57 | BDB1~BDB7 | I/O | Buffer memory data bus. |
| 58 | BDBP | I/O | Buffer memory pointer data bus. |
| 59 | XTL2 | O | X'TAL oscillator circuit output terminal. |
| 60 | XTL1 | I | X'TAL oscillator input terminal. |
| 61 | GND | — | GND. |
| 62 | HCLK | O | X'TAL 1 divided-by-2 clock signal. |
| 63 | LRCK | I | LR clock from CD player. |
| 64 | DATA | I | Serial data from CD player. |
| 65 | BCLK | I | Bit clock from CD player. |
| 66 | C2P0 | I | C2 pointer from CD player. |
| 67~70 | DB0~DB3 | I/O | CPU data bus. |
| 71 | VDD | — | Power supply (+5 V) terminal. |
| 72~75 | DB4~DB7 | I/O | CPU data bus. |

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 76 | XCS | I | Chip select negative logic signal from CPU. |
| 77 | XRD | I | IC internal register read-out strobe negative logic signal from CPU. |
| 78 | XWR | I | IC internal register write strobe negative logic signal from CPU. |
| 79 | INT | O | Interrupt request signal to CPU. |
| 80 | GND | — | GND. |

## IC, TLC29321PW

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1 | VDD | — | Power supply terminal to the internal logic circuit. |
| 2 | VCO LS | I | VCO output frequency divide-by-2 divider select terminal. The VCO output frequency can be divided by 2 and output as this terminal is controlled by external logic. |
| 3 | VCOO | O | VCO output terminal. Goes to low level during inhibit. |
| 4, 5 | FIN-A, FIN-B | I | 2 input terminal for edge difference detection between the reference frequency (fREF-IN) and the frequency from external counter. The fREF-IN is input to the FIN-A terminal normally, and the divided or multiplied frequency from external counter is input to the FIN-B terminal. |
| 6 | PFDO | O | PFD output terminal. |
| 7 | GND | — | Internal logic circuit GND terminal. |
| 8 | NC | — | N.C. |
| 9 | PFDIH | I | PFD inhibit function control terminal. |
| 10 | VCOIH | I | VCO inhibit function control terminal. |
| 11 | A GND | — | VCO GND. |
| 12 | VCOI | I | VCO control voltage input. The VCO oscillator control voltage is input from an external low-pass filter to form PLL. |
| 13 | RBIAS | I | External resistor is connected to this terminal for setting the VCO oscillation frequency. A bias resistor is connected between this terminal and power supply line to supply bias for internal VCO oscillation and for setting and adjusting the oscillating frequency. |
| 14 | A VDD | — | VCO power supply voltage terminal. |

## IC, HD49307

| Pin No. | Pin No. | I/O | Description |
|---|---|---|---|
| 1~5 | G4~G8 | I | Digital input terminal. |
| 6 | B1 | — | N. C. |
| 7 | NC | I | Digital input terminal. |
| 8~12 | B2~B6 | I | Digital input terminal. |
| 13~15 | NC | — | N. C. |
| 16, 17 | B7, B8 | I | Digital input terminal. |
| 18 | NC | — | N. C. |
| 19 | RCLK | I | R channel clock input. |
| 20 | GCLK | I | G channel clock input. |
| 21 | BCLK | I | B channel clock input. |
| 22 | DVSS | — | Digital GND. |
| 23 | DVDD | — | Digital power supply. |
| 24 | NC | — | N. C. |
| 25 | CBU | — | External phase compensation capacitance connection terminal. |
| 26 | CBL | — | Bypass capacitance connection terminal. |
| 27~29 | NC | — | N. C. |
| 30 | VRREF | I | Reference voltage input terminal. |
| 31 | AVSS | — | Analog GND. |
| 32 | AVDD | — | Analog power supply. |
| 33 | BOUT | O | B channel analog signal output terminal. |
| 34 | AVDD | — | Analog power supply. |
| 35 | NC | — | N. C. |
| 36 | GOUT | O | G channel analog signal output terminal. |
| 37 | AVDD | — | Analog power supply. |
| 38 | ROUT | O | R channel analog signal output terminal. |
| 39 | AVSS | — | Analog GND. |
| 40 | AVDD | — | Analog power supply. |
| 41 | DVDD | — | Digital power supply. |
| 42 | R1 | I | Digital input terminal. |
| 43~44 | NC | — | N. C. |
| 45~51 | R2~R8 | I | Digital input terminal. |
| 52~54 | G1~G3 | I | Digital input terminal. |
| 55, 56 | NC | — | N. C. |

## IC, µPD61010

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1 | VDD | — | +5 V power supply. |
| 2~6 | HD9~5 | I/O | Host data bus. |
| 7 | VDD | — | +5 V power supply. |
| 8 | GND | — | GND. |
| 9~13 | HD4~0 | I/O | Host data bus. |
| 14 | VDD | — | +5 V power supply. |
| 15 | GND | — | GND. |
| 16 | $\overline{\text{DREQ}}$ | O | DMA request signal. |
| 17 | $\overline{\text{DACK}}$ | I | DMA acknowledge signal. |
| 18 | HSEL | I | Signal to select the host CPU access method. |
| 19 | DRQ | I | Data input request for bit stream input from CD-ROM decoder. |
| 20 | VDD | — | +5 V power supply. |
| 21 | GND | — | GND. |
| 22 | $\overline{\text{DAK}}$ | O | Data input response for bit stream input from CD-ROM decoder, or DMA input request for code input. |
| 23 | $\overline{\text{DRD}}$ | O | Bit stream input approval signal. |
| 24, 25 | NC | — | N. C. |
| 26~33 | CD0~7 | I | Data bus for bit stream input from CD-ROM decoder. |
| 34 | VDD | — | +5 V power supply. |
| 35 | GND | — | GND. |
| 36~39 | MD7~4 | I/O | DRAM data bus. |
| 40 | VDD | — | +5 V power supply. |
| 41, 42 | GND | — | GND. |
| 43~46 | MD3~0 | I/O | DRAM data bus. |
| 47, 48 | MD15, 14 | I/O | DRAM data bus. |
| 49 | VDD | — | +5 V power supply. |
| 50 | GND | — | GND. |
| 51~56 | MD13~8 | I/O | DRAM data bus. |
| 57 | VDD | — | +5 V power supply. |
| 58 | GND | — | GND. |
| 59~64 | MA0~5 | O | DRAM address bus. |
| 65 | VDD | — | +5 V power supply. |
| 66 | GND | — | GND. |
| 67~69 | MA6~8 | O | DRAM address bus. |
| 70 | $\overline{\text{RAS 1}}$ | O | DRAM RAS signal. |
| 71 | $\overline{\text{RAS 0}}$ | O | DRAM RAS signal. |
| 72 | $\overline{\text{CAS}}$ | O | DRAM CAS signal. |
| 73 | VDD | — | +5 V power supply. |
| 74 | $\overline{\text{WE}}$ | O | Write enable to DRAM. |
| 75~77 | NC | — | N. C. |
| 78 | VOE | I | Video data output enable. |

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 79, 80 | GND | — | GND. |
| 81 | VDD | — | +5 V power supply. |
| 82 | NC | — | N. C. |
| 83 | FLDI | I | Field signal (odd/even) |
| 84 | HDI | I | Horizontal sync signal. |
| 85 | VDI | I | Vertical sync signal. |
| 86 | VDCLK | I | Video data output clock (13.5 MHz). |
| 87 | VDD | — | +5 V power supply. |
| 88~91 | VDATA23~20 | O | Video data output bus. |
| 92 | GND | — | GND. |
| 93 | VDD | — | +5 V power supply. |
| 94~97 | VDATA19~16 | O | Video data output bus. |
| 98, 99 | VDATA15, 14 | O | Video data output bus. |
| 100 | VDD | — | +5 V power supply. |
| 101 | GND | — | GND. |
| 102~105 | VDATA13~10 | O | Video data output bus. |
| 106 | VDD | — | +5 V power supply. |
| 107 | GND | — | GND. |
| 108~112 | VDATA9~5 | O | Video data output bus. |
| 113 | VDD | — | +5 V power supply. |
| 114 | GND | — | GND. |
| 115~119 | VDATA4~0 | O | Video data output bus. |
| 120 | VDD | — | +5 V power supply. |
| 121, 122 | GND | — | GND. |
| 123 | DO | O | Video data output bus. |
| 124 | BCK | O | Video data output clock. |
| 125 | LRCK | O | L/R channel identification signal. |
| 126 | MCLK | O | Audio master clock. |
| 127 | NC | — | N. C. |
| 128 | AUCLK | I | Internal audio decoder system clock. |
| 129 | VDD | — | +5 V power supply. |
| 130~132 | NC | — | N. C. |
| 133 | VDD | — | +5 V power supply. |
| 134 | $\overline{\text{RESET}}$ | I | Reset signal. |
| 135 | CLK | I | System clock (27 MHz) |
| 136 | GND | — | GND. |
| 137 | $\overline{\text{DS}}$ | I | Data strobe signal. |
| 138 | R/$\overline{\text{W}}$ | I | Read/write select. |
| 139 | $\overline{\text{CS}}$ | I | Chip select. |
| 140~145 | HADR0~5 | I | Host address bus. |
| 146, 147 | GND | — | GND. |

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 148 | INT | O | Interrupt signal. |
| 149 | $\overline{\text{HDAK}}$ | O | Bus cycle response signal. |
| 150 | VDD | — | +5 V power supply. |
| 151 | GND | — | GND. |
| 152~157 | HD15~10 | I/O | Host data bus. |
| 158 | VDD | — | +5 V power supply. |
| 159, 160 | GND | — | GND. |

## IC, μPD63210GT

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1 | TSEL | I | Test selection input. |
| 2 | RST | I | Reset input. |
| 3 | XTO | O | External crystal oscillator is connected to this pin. |
| 4 | XTI | I | External crystal oscillator is connected to this pin. |
| 5 | MCKO | O | Master clock output. |
| 6 | CKSEL | I | Clock selection input. |
| 7 | CLK | I | Bit clock input. |
| 8 | SI | I | Data input. |
| 9 | LRCK | I | LR clock input. |
| 10 | DEFS1 | I | Deemphasis selection input 1. |
| 11 | DEFS2 | I | Deemphasis selection input 2. |
| 12 | DSEL | I | Double speed playback selection input.. |
| 13 | SMUTE | I | Soft mute selection input. |
| 14 | BSEL | I | Data bit length selection input. |
| 15 | DGND | — | Digital GND. |
| 16 | AGND | — | Analog GND. |
| 17 | RO | O | D/A converter output (R channel). |
| 18 | AOR | O | Filter amplifier output (R channel). |
| 19 | ANIR | I | Filter amplifier (-) input (R channel). |
| 20 | APIR | I | Filter amplifier (+) input (R channel). |
| 21 | RREF | — | Reference (R channel). |
| 22 | LREF | — | Reference (L channel). |
| 23 | APIL | I | Filter amplifier (+) input (L channel). |
| 24 | ANIL | I | Filter amplifier (-) input (L channel). |
| 25 | AOL | O | Filter amplifier output (L channel). |
| 26 | LO | O | D/A converter output (L channel). |
| 27 | AVDD | — | Analog power supply. |
| 28 | DVDD | — | Digital power supply. |

## IC, TC170C100AF

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1~5 | YIN4~0 | I | Y signal from MPEG chip. |
| 6 | GND | — | GND. |
| 7~14 | UIN7~0 | I | U signal from MPEG chip. |
| 15 | GND | — | GND. |
| 16, 17 | VIN7, 6 | I | V signal from MPEG chip. |
| 18 | VCC | — | Power supply terminal. |
| 19~24 | VIN5~0 | I | V signal from MPEG chip. |
| 25 | GND | — | GND. |
| 26 | FLDO | O | Odd/even signal output of a field. |
| 27 | $\overline{\text{HDO}}$ | O | $\overline{\text{HSYNC}}$ signal to MPEG chip. |
| 28 | $\overline{\text{VDO}}$ | O | $\overline{\text{VSYNC}}$ signal to MPEG chip. |
| 29 | PCP | O | Clamp signal output. |
| 30 | CBLK | O | Blanking signal output (used depending upon type of DAC). |
| 31 | GND | — | GND. |
| 32 | FSC | O | Sub carrier output (Divided-by-four of NTSC: 14.31818 MHz. PAL: 17.734475 MHz). |
| 33 | CDG/$\overline{\text{MPEG}}$ | O | CD-G or MPEG play selector signal to external RGB video selector. |
| 34 | TEST0 | I | Operation mode setting terminal. |
| 35 | GND | — | GND. |
| 36 | 13.5M | O | 13.5 MHz output. |
| 37 | GND | — | GND. |
| 38~43 | R OUT7~2 | O | Y/R signal output (Output format can be selectable in Y/R). |
| 44 | GND | — | GND. |
| 45, 46 | R OUT1, 0 | O | Y/R signal output (Output format can be selectable in Y/R). |
| 47~54 | G OUT7~0 | O | U/G signal output (Output format can be selectable in U/G). |
| 55 | VCC | — | Power supply terminal. |
| 56~63 | B OUT7~0 | O | V/B signal output (Output format can be selectable in V/B). |
| 64 | GND | — | GND. |
| 65 | 27M | I | 27 MHz input. |
| 66 | TEST1 | I | Operation mode setting terminal. |
| 67 | SHSYNC | O | Comparison clock for PLL synchronizing CLK. |
| 68 | MHSYNC | O | Reference clock for PLL synchronizing CLK. |
| 69 | VCC | — | Power supply terminal. |
| 70 | OSC1 | I | 14.31818 MHz input port (crystal oscillation) when supporting NTSC. |
| 71 | OSC2 | O | NTSC: 14.31818 MHz crystal oscillation output terminal. |
| 72, 73 | GND | — | GND. |
| 74 | OSC3 | I | 17.734475 MHz input port (crystal oscillation) when supporting PAL. |
| 75 | OSC4 | O | 17.734475 MHz crystal oscillation output terminal. |
| 76 | VCC | — | Power supply terminal. |
| 77, 78 | TEST2, 3 | I | Operation mode setting terminal. |
| 79 | FMOD | I | FLD0 output HL inversion selection signal. |
| 80 | PMOD | I | PCP output HL inversion selection signal. |

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 81 | GND | — | GND. |
| 82~85 | T15~T12 | I | RAM data input terminals 15 - 12 during RAM check. |
| 86 | T11OP3 | I/O | OUT port terminals 3 - 0 (address 4). RAM data input terminals 11 - 8 during RAM check. |
| 87 | T10OP2 | I/O | OUT port terminals 3 - 0 (address 4). RAM data input terminals 11 - 8 during RAM check. |
| 88 | T9OP1 | I/O | OUT port terminals 3 - 0 (address 4). RAM data input terminals 11 - 8 during RAM check. |
| 89 | T8OP0 | I/O | OUT port terminals 3 - 0 (address 4). RAM data input terminals 11 - 8 during RAM check. |
| 90 | VCC | — | Power supply terminal. |
| 91 | $\overline{\text{GHSYNC}}$ | I | $\overline{\text{HSYNC}}$ signal from CD-G decoder. |
| 92 | $\overline{\text{GVSYNC}}$ | I | $\overline{\text{VSYNC}}$ signal from CD-G decoder. |
| 93 | $\overline{\text{GCSYNC}}$ | I | $\overline{\text{CSYNC}}$ signal from CD-G decoder. |
| 94 | GND | — | GND. |
| 95~98 | T7~4 | I | RAM data input terminals 7 - 4 during RAM check. |
| 99 | T3IP3 | I | IN port terminals 3 - 0 (address 5). RAM data input terminals 3 - 0 during RAM check. |
| 100 | T2IP2 | I | IN port terminals 3 - 0 (address 5). RAM data input terminals 3 - 0 during RAM check. |
| 101 | T1IP1 | I | IN port terminals 3 - 0 (address 5). RAM data input terminals 3 - 0 during RAM check. |
| 102 | T0IP0 | I | IN port terminals 3 - 0 (address 5). RAM data input terminals 3 - 0 during RAM check. |
| 103 | GND | — | GND. |
| 104 | 4FSC | O | 104 NTSC: 14.31818 MHz. PAL: 17.734475 MHz buffer output. |
| 105 | GND | — | GND. |
| 106 | RAMCE | I | Chip enable signal for checking internal RAM and ROM check. (Fixed to low normally). |
| 107 | RAMW | I | Read/write signal for checking internal RAM and ROM check. (Fixed to low normally). |
| 108 | XT2C | I | XT2C input (used for HYNC DL delay). |
| 109 | GND | — | GND. |
| 110 | $\overline{\text{RST}}$ | I | Input port of the reset signal. |
| 111 | GND | — | GND. |
| 112 | PAL/$\overline{\text{NTSC}}$ | I | PAL/NTSC selector port. |
| 113 | HSYNCIN | O | Inverted output of $\overline{\text{HYNSC}}$ IN. |
| 114 | $\overline{\text{HSYNCIN}}$ | I | $\overline{\text{SYNC}}$ signal from VST (only when supporting FMV engine). |
| 115 | $\overline{\text{VSYNCIN}}$ | I | $\overline{\text{VSYNC}}$ from VSC. (only when supporting FMV engine). |
| 116 | GND | — | GND. |
| 117~124 | D7~0 | I/O | CPU data bus signal. |

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 125 | VCC | — | Power supply terminal. |
| 126 | CMOD | I | CLBK output HL inversion selection signal. |
| 127 | $\overline{\text{VOD}}$ | I | Video output disable. |
| 128 | VCD/$\overline{\text{FMV}}$ | I | VIDEO CD/DMV engine selection port. |
| 129 | $\overline{\text{CS}}$ | I | Chip select signal. |
| 130 | $\overline{\text{RD}}$/$\overline{\text{LDS}}$ | I | READ signal from CPU $\overline{\text{RD}}$ (when supporting H8). $\overline{\text{LD}}$ (when supporting 680009). |
| 131 | $\overline{\text{WR}}$/R/$\overline{\text{W}}$ | I | $\overline{\text{WRITE}}$ signal from CPU $\overline{\text{WR}}$ (when supporting H8). R/W (when supporting 680009). |
| 132~134 | A2~0 | I | Address signal from CPU. |
| 135 | H8/$\overline{\text{68}}$ | I | CPU H8-325/68000 selection port. |
| 136 | GND | — | GND. |
| 137 | $\overline{\text{HSYNCO}}$ | O | Horizontal sync output. |
| 138 | $\overline{\text{VSYNCO}}$ | O | Vertical sync output. |
| 139 | $\overline{\text{CSYNCO}}$ | O | Composite sync output. $\overline{\text{CSYNC}}$ signal from video encoder. |
| 140 | SMOD | I | 13.5 MHz ↑ ↓ selection of SYNC signal output. Selection is possible at the final stage of $\overline{\text{HDO}}$, $\overline{\text{VDO}}$, $\overline{\text{HSYNCO}}$, $\overline{\text{VSYNCO}}$, $\overline{\text{CSYNCO}}$, SHYNC, PCP, CBLK, FLDO. (However, $\overline{\text{HSYNCO}}$, $\overline{\text{VSYNCO}}$, $\overline{\text{CSYNCO}}$ are supported during SYNC output of the CD-G decoder.) |
| 141 | VCC | — | Power supply terminal. |
| 142~144 | YIN7~5 | I | Y signal from MPEG chip. |

## IC, MB89627

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1 | CCLK | O | SSP, DSP Control Clock. |
| 2 | DATA | O | SSP, DSP Control Data. |
| 3 | SENS | I | SSP, DSP Status. |
| 4 | XLAT | O | SSP, DSP Command Latch. |
| 5 | XRST | O | SSP, DSP Reset. |
| 6 | TVMSW | O | OFF/NTSC/PAL/PAL60/PAL AUTO/AUTO/TEST. *NOTE |
| 7 | DMUTE | O | Digital Mute. |
| 8 | AMUTE | O | Analog Mute. |
| 9 | LDON | O | Servo PCB Power on. |
| 10 | VCDRST | O | Video CD Reset. |
| 11 | OPTON | O | Optical Digital Output ON. |
| 12 | VCC | — | A/D Converter VCC. |
| 13 | VCC | — | A/D Converter VREF. |
| 14 | VSS | — | A/D Converter VSS. |
| 15 | HOSTIRQ | I | Host CPU Interrupt Request. |
| 16 | SCOR | I | Subcode Sync 0. (Subcode IRQ) |
| 17 | ILSW | I | Inter Limit Switch. |
| 18 | VCDIRQ | I | Video CD Decoder Interrupt Request. |
| 19 | N. C. | I | Not used. |
| 20 | RST | I | CPU Reset. |
| 21 | MODE0 | I | CPU MODE. (Pull-down) |
| 22 | MODE1 | I | CPU MODE. (Pull-down) |
| 23 | CLKIN | O | 8MHz System Clock. |
| 24 | CLKOUT | I | 8MHz System Clock. |
| 25 | VSS | — | GND. |
| 26 | ALE | O | Address Latch Strobe. |
| 27 | RD | O | Data Read Strobe. |
| 28 | WR | O | Data Write Strobe. |
| 29 | CLK | O | Clock out. |
| 30 | READY | I | Video CD Decoder Ready. |
| 31 | OSDCS | O | OSDC Enable. |
| 32 | OSDCLK | O | OSDC Data Clock. |
| 33 | OSDSIN | O | OSDC Data. |
| 34~41 | A8~A15 | O | Address Bus 8~15. |
| 42~49 | AD0~AD7 | I/O | Address/Data Bus 0~7. |
| 50 | VSS | — | GND. |
| 51 | VCD/CDG | O | Video CD/CDG Switch. |
| 52 | HCLK | I | Host CPU Control Clock. |
| 53 | ST | O | Host CPU Control Send Data. |
| 54 | RT | I | Host CPU Control Receive Data. |
| 55 | TRACK | I | Travase Counter. |

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 56 | ENCRST | O | Video Encoder Reset. |
| 57 | DVCC | — | DVCC. |
| 58 | PAL/PAL60 | O | PAL/PAL60 Switch. |
| 59 | XNTSC | O | PAL/NTSC Switch. |
| 60 | SQCK | O | Subcode Q Read Clock. |
| 61 | SQSO | I | Subcode Q Serial Data. |
| 62 | BUSY | I/O | Host CPU I/F Busy Signal. |
| 63 | FOK | I | Focus Servo OK Detect. |
| 64 | GFS | I | Frame Sync Detect. |

## Note

- Analog input (TVMSW: 6 pin) of the microprocessor is divided into 7, then controlled.
- The output are the command setting (Set Video Format) to the two ports of PAL/PAL60 (58 pin), XNTSC (59 pin) and IC301 (CL484).

| TVMSW (6 pins) | | DISC encoding system | TV output mode | PAL/PAL60 (58 pins) | XNTSC (59 pins) | Set Video Format |
|---|---|---|---|---|---|---|
| Volt (V) | Mode | | | | | |
| 5.00 | OFF | — | Not used (NTSC output mode). | | | |
| 4.58 | NTSC | — | NTSC | H | L | NTSC |
| 3.75 | PAL | — | PAL | H | H | PAL |
| 2.92 | PAL60 | — | PAL60 | L | H | NTSC |
| 2.08 | PAL AUTO | NTSC | PAL60 | L | H | NTSC |
| | | PAL | PAL | H | H | PAL |
| 1.25 | AUTO | NTSC | NTSC | H | L | NTSC |
| | | PAL | PAL | H | H | PAL |
| 0.42<br>0.00 | TEST | — | For servo circuit adjustment (NTSC output mode). | | | |

*1 As to identification of the disc encoding system, it is identified from the V_SIZE (1A1h/word) of the MPEG data.

*2 "For servo circuit adjustment" is the process during adjustment (when variable resistor is operated by service engineer) that the microprocessor enters the emergency process routine if the servo system goes extremely out of the servo range.

*3 In addition to the above, ENCRST (56 pin) is the reset signal for TV encoder, issues the active "L" pulse when each of the input port of CDGSW, NTB, CVSY, HSY, PIXCLK, GCLK, PAL60B and VCLK of IC401 (BU1417AK) has changed as follows:

① When the power is supplied to the circuit boards of the CD block,

② When starting to reach TOC.

③ The modes have changed as follows:

- TVMSW is switched.
- Switching of encoding system owing to exchange of video CD disc
- Exchange of video CD disc with the CD-DA or CD-G.

## IC, CL484

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1 | HSEL2 | I | Host address bus. |
| 2 | -DS | I | Data strobe. |
| 3 | R/-W | I | Read/write. |
| 4 | CFLEVEL | O | Coded data FIFO level status. Open drain. |
| 5 | -DACK | O | Host data acknowledge. Open drain. |
| 6 | HD0 | I/O | Host data bus. |
| 7 | VDD3 | — | Power supply pin. Used in 3.3 V. |
| 8, 9 | HD1, HD2 | I/O | Host data bus. |
| 10 | VSS | — | GND. |
| 11~15 | HD3~HD7 | I/O | Host data bus. |
| 16 | VSS | — | GND. |
| 17 | -TEST | I | Test terminal. Normally fixed to High. |
| 18 | VSS | — | GND. |
| 19 | XTL IN | I | Global clock. 40.5 MHz. |
| 20 | XTL OUT | O | Global clock. 40.5 MHz. |
| 21, 22 | VDD3 | — | Power supply pin. Used in 3.3 V. |
| 23~28 | MD0~MD5 | I/O | Memory data bus. |
| 29 | VDD3 | — | Power supply pin. Used in 3.3 V. |
| 30, 31 | MD6, MD7 | I/O | Memory data bus. |
| 32, 33 | -MCE0, -MCE1 | O | Chip enable. |
| 34~37 | MD8~MD11 | I/O | Memory data bus. |
| 38 | VSS | — | GND. |
| 39~42 | MD12~MD15 | I/O | Memory data bus. |
| 43 | VDDMAX | — | Power supply pin. Used in 5.0 V. |
| 44 | -LCAS | O | Lower digit, column address strobe. |
| 45 | -LCASIN | I | Lower digit, data latch enable. |
| 46 | VSS | — | GND. |
| 47 | -MWE | O | Write enable. |
| 48 | -UCAS | O | Higher digit, column address strobe. |
| 49 | VDD3 | — | Power supply pin. Used in 3.3 V. |
| 50 | -UCASIN | I | Higher digit, data'latch enable. |
| 51, 52 | RAS0, RAS1 | O | Lower address strobe. |
| 53~57 | MA9~MA5 | O | Memory address bus. |
| 58 | VSS | — | GND. |
| 59~63 | MA4~MA0 | O | Memory address bus. |
| 64 | RESERVED | — | Reserved. |
| 65 | VDD3 | — | Power supply pin. Used in 3.3 V. |
| 66~72 | VD0~VD6 | O | Pixel data bus. RGB or YCbCr format. |
| 73 | VSS | — | GND. |
| 74~76 | VD7~VD9 | O | Pixel data bus. RGB or YCbCr format. |
| 77 | VDD3 | — | Power supply pin. Used in 3.3 V. |

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 78~80 | VD10~VD12 | O | Pixel data bus. RGB or YCbCr format. |
| 81 | VDD3 | — | Power supply pin. Used in 3.3 V. |
| 82~84 | VD13~VD15 | O | Pixel data bus. RGB or YCbCr format. |
| 85 | VSS | — | GND. |
| 86~89 | VD16~VD19 | O | Pixel data bus. RGB or YCbCr format. |
| 90 | VSS | — | GND. |
| 91~94 | VD20~VD23 | O | Pixel data bus. RGB or YCbCr format. |
| 95 | -VSYNC or CSY | I/O | Vertical sync signal. |
| 96 | -HSYNC | I/O | Horizontal sync signal. |
| 97 | -VOE | I | Video output enable. |
| 98 | VDD3 | — | Power supply pin. Used in 3.3 V. |
| 99 | VCLK | I/O | Video clock. |
| 100 | VSS | — | GND. |
| 101 | -RESET | I | Hardware reset. |
| 102 | VSS | — | GND. |
| 103 | CD-C2PO | I | Data error. Used during CD-ROM data input. |
| 104 | CD-LRCK | I | LR clock. |
| 105 | CD-DATA | I | Serial data input from CD-DSP. |
| 106 | CD-BCK | I | Bit clock from CD decoder. |
| 107 | DA-LRCK | O | LR clock. |
| 108 | DA-DATA | O | Bit serial audio sample signal. |
| 109 | DA-BCK | O | Audio bit clock. |
| 110 | VDD3 | — | Power supply pin. Used in 3.3 V. |
| 111 | DA-XCLK | I | External audio frequency clock. |
| 112 | VDD3 | — | Power supply pin. Used in 3.3 V. |
| 113 | -INT | O | Interrupt request. |
| 114 | CDG-S0S1 | I | Block start sync. |
| 115 | HOST_ENA | I | Host enable. |
| 116 | RAM_ENA | I | Boot ROM enable. |
| 117 | CDG-VFSY | I | Frame start or composite sync. |
| 118 | DAC_EMP | O | Output emphasis flag. |
| 119 | CDDA_EMP | I | Input emphasis flag. |
| 120 | CDG-SDATA | I | Subcode data. |
| 121 | CDG-SCLK | I/O | Subcode data clock. |
| 122 | CDDA/VCD | O | Input data identification. H: CDDA. L: video CD. |
| 123 | VDDMAX | I | Power supply pin. Used in 5.0 V. |
| 124 | FSC1 | O | Output generated by dividing-by-4 the pin-126 input CLK. |
| 125 | VSS | — | GND. |
| 126 | FSC4 | I | Frequency divider input. |
| 127, 128 | HSEL0, HSEL1 | I | Host address bus. |

## IC, BU1417AK

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1 | BOSD | I | OSD Blue Data input. |
| 2 | GD0 | I | Green Data Bit 0. (LSB) |
| 3~8 | GD1~GD6 | I | Green Data Bit 1~6. |
| 9 | GND | — | Digital ground. |
| 10 | GD7 | I | Green Data Bit 7. (MSB) |
| 11 | BD0 | I | Blue Data Bit 0. (LSB) |
| 12~14 | BD1~BD3 | I | Blue Data Bit 1~3. |
| 15 | OSDSW | I | OSD input enable. |
| 16 | CDGSWB | I | Select Video-CD/$\overline{\text{CD-G}}$. |
| 17~19 | BD4~BD6 | I | Blue Data Bit 4~6. |
| 20 | BD7 | I | Blue Data Bit 7. (MSB) |
| 21 | GND | — | Digital ground. |
| 22 | NTB | I | Select $\overline{\text{NTSC}}$/PAL mode. |
| 23, 24 | IM0, IM1 | I | Input mode set Bit 0, 1. |
| 25, 26 | TEST1, TEST2 | I | Normally pulldown to GND. |
| 27 | CVSY | I | C-SYNC or V-SYNC input. |
| 28 | HSY | I | H-SYNC input. |
| 29 | PIXCLK | O | 1/2 Freq. of internal CL. |
| 30 | BLKB | I | Data blanking $\overline{\text{ENABLE}}$. |
| 31 | VDD | — | Digital VDD. |
| 32 | INT | I | INTERLACE/$\overline{\text{NON-INTERLACE}}$. |
| 33 | SLABEB | I | Set mode MASTER/$\overline{\text{SLABE}}$. |
| 34 | ADDH | I | ADD One_line at Non-inter. |
| 35 | VREF | I | Reference voltage. (1.29V) |
| 36 | CGND | — | Chroma output ground. |
| 37 | COUT | O | Chroma output. |
| 38 | VGND | — | Composite output ground. |
| 39 | VOUT | O | Composite output. |
| 40 | AVSS | — | Analog (DAC, VREF) ground. |
| 41 | NC | — | Not used. |
| 42 | IR | I | Reference resistor. (1.2K) |
| 43 | AVDD | — | Analog (DAC, REF) VDD. |
| 44 | YGND | — | Luminance output ground. |
| 45 | YOUT | O | Luminance output. |
| 46 | G4FSC | I | Pulldown to GND. |
| 47 | GCLK | I | Video clock input for CD-G. |
| 48 | YCOFF | I | DAC (YOUT, COUT) off. |
| 49 | YFILON | I | Pulldown to GND. |
| 50 | PAL60B | I | $\overline{\text{PAL60 ON}}$ at NTB=HIGH. |
| 51 | VCLK | I | Video clock input for VCD. |
| 52 | RSTB | I | Logic part initial reset. |

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 53 | CLKSW | I | Divide input CLK $\overline{\text{ENABLE}}$. |
| 54 | RD0 | I | Red data Bit 0. (LSB) |
| 55, 56 | RD1, RD2 | I | Red data Bit 1, 2. |
| 57 | ROSD | I | OSD Red data input. |
| 58~60 | RD3~RD5 | I | Red data Bit 3~5. |
| 61 | VDD | — | Digital VDD. |
| 62 | RD6, RD7 | I | Red data Bit 6, 7. |
| 63 | GOSD | I | OSD green data input. |

## IC, BU2173AF

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1 | VDD | — | Digital VDD. |
| 2 | TSTO | O | Open during normal mode. (Used in test mode.) |
| 3 | XTALI | I | Reference oscillator input. |
| 4 | XTALO | O | Reference oscillator output. |
| 5 | CTRLA | I | CD-G/VCD clock selector terminal. |
| 6 | CTRLB | I | Fixed to "H" during normal mode. |
| 7 | CTRLC | I | CD-G PAL/NTSC clock selector terminal. |
| 8 | TSTI | I | Connected to Vss during normal mode. (Used in test mode.) |
| 9 | VSS | — | Digital GND. |
| 10 | AVSS | — | Analog GND. |
| 11 | FOUT3 | O | Not used. Open during normal mode. |
| 12 | VSSIO | — | I/O GND. |
| 13 | FOUT2 | O | Clock output (2). |
| 14 | TEST | — | Test mode setting. Connected to Vss during normal mode. |
| 15 | FOUT1 | O | Clock output (1). |
| 16 | VDDIO | — | I/O VDD. |
| 17 | FOUT4 | O | Clock output (4). |
| 18 | AVDD | — | Analog VDD. |

# TEST MODE

1. How to Activate CD Test Mode
   Insert the AC plug while pressing the function CD button.
   All FL display tubes will light up, and the test mode will be activated.

2. How to Cancel CD Test Mode
   Either one of the following operations will cancel the CD test mode.
   - Press the function button. (except CD function button)
   - Press the power switch button.
   - Disconnect the AC plug

3. CD Test Mode Functions
   When test mode is activated, the following mode functions from No.1 to No.5 can be used by pressing the operation keys.

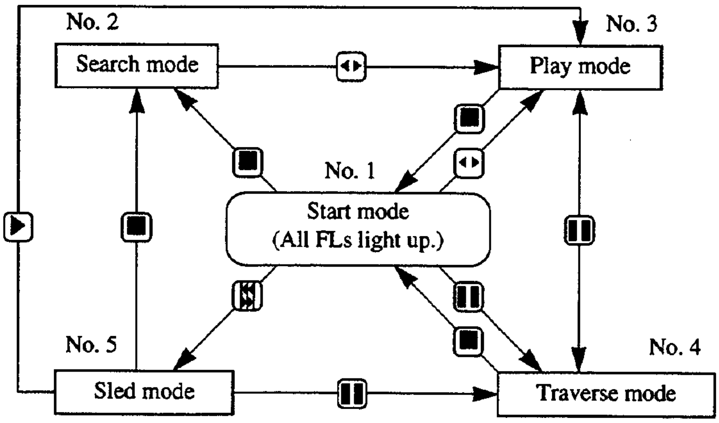
| Mode/No. | Operation | FL display | Operation | Contents |
|---|---|---|---|---|
| Start mode<br>No.1 | Activation | All lamps light | • Test mode is activated.<br>• Laser diode turns always ON. (CD block power is ON.) | • FL display check (All displays light.)<br>• APC circuit check<br>• Laser current measurement (Laser current control. Across a resistor connected between emitter and GND.) |
| Search mode<br>No.2 | ■ key | CD-- | • Continual focus search (The pickup lens repeats the full-swing up-down motion.)<br>* Avoid continual searches that last for more than 10 minutes. * NOTE 1 | FOCUS SERVO<br>• Check focus search waveform<br>• Check focus error waveform (FOK/FZC are not monitored in the search mode) |
| Play mode<br>No.3 | ◀▶ key | CD 1 | • Normal playback<br>• Focus search is continued if TOC cannot be read. * NOTE 1 | FOCUS SERVO/TRACKING SERVO<br>CLV SERVO/SLED SERVO<br>Check FOK/FZC |
| Traverse mode<br>No.4 | ❚❚ key | CD 1 | • During normal disc playback<br>Press once; tracking servo OFF<br>Press twice; tracking servo ON<br>* NOTE 2 | TRACKING SERVO ON/OFF<br>Tracking balance (traverse) adjustment |
| Sled mode<br>No.5 | ⏮ key<br>⏭ | All lamps light | • Pickup moves to the outermost track<br>• Pickup moves to the innermost track<br>* NOTE 3<br>(During playback, machine operates normally.) | SLED SERVO<br>Check SLED mechanism operation |

* NOTE 1: There are cases when the tracking servo cannot be locked owing to the protection circuit being operated when heat builds up in the driver IC if the focus search is operated continually for more than 10 minutes. In these cases the power supply should be switched off for 10 minutes until heat has been reduced and then re-started.

* NOTE 2: Do not press the ⏮ or ⏭ keys when the machine is in the ❚❚ status is active. If they are pressed, playback will not be possible after the ❚❚ status has been canceled. If the ⏮ or ⏭ keys are pressed in the ❚❚ status, press the ■ key and return to the start mode (No.1).

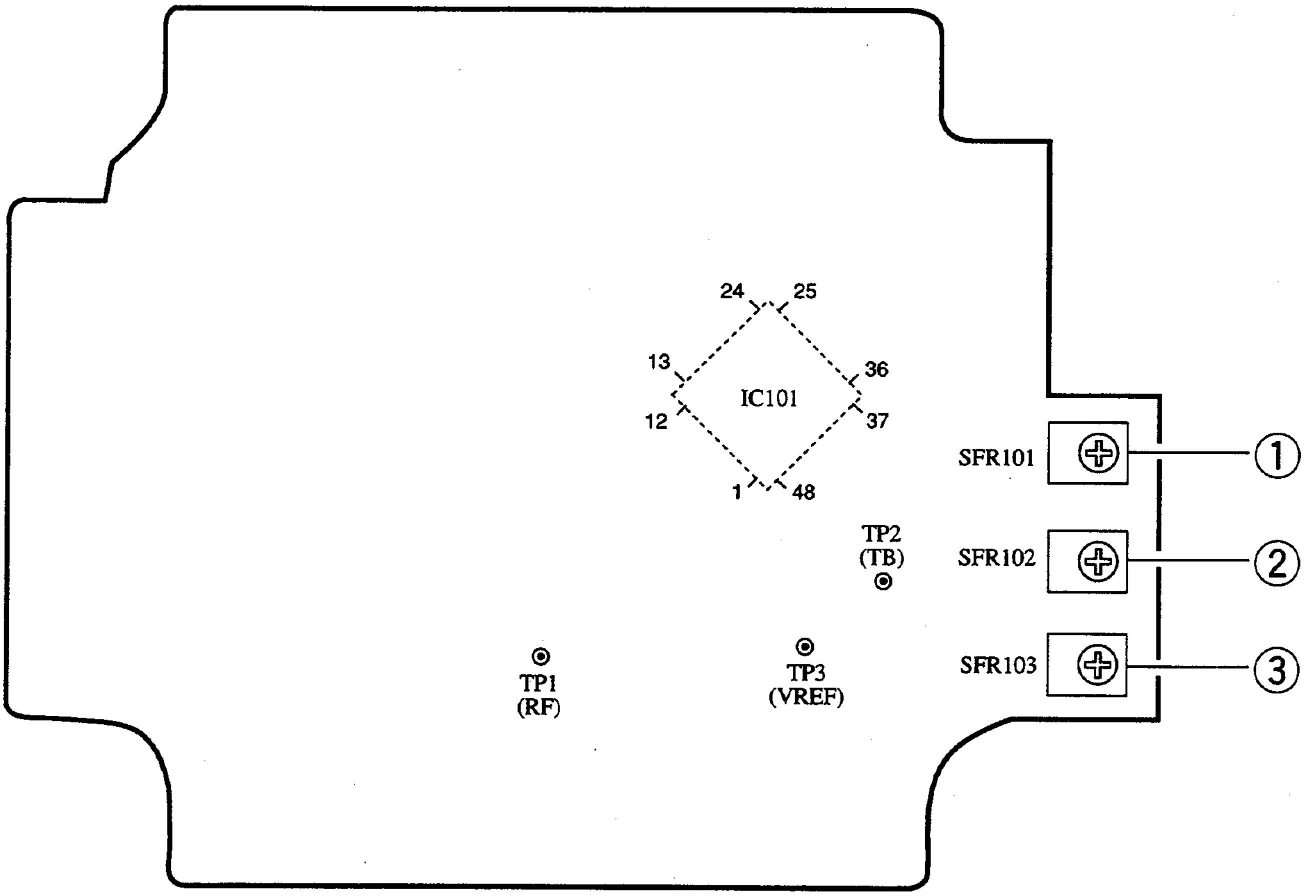
* NOTE 3: When pressing the ⏮ or ⏭ keys, take care to avoid damage to the gears. Because the sled motor is activated when the ⏮ or ⏭ keys are pressed, even when the pick-up is at the outermost or innermost track.

4. Operation Outline
   The operation of each mode is carried out in the direction of the arrows from the start mode as indicated in the following illustration.



If the DISC DIRECT PLAY button is pressed, the machine performs the same operation as the PLAY button is pressed as shown. If the tray is opened by pressing OPEN/CLOSE button during Play mode or Traverse mode, the machine returns to the Start mode.

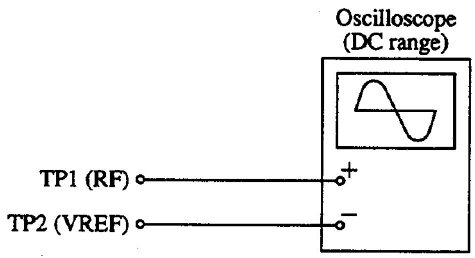
## B CD MECHA C.B


24
25
13
36
IC101
12
37
1
48
TP2
(TB)
TP1
(RF)
TP3
(VREF)
SFR101
SFR102
SFR103
①
②
③

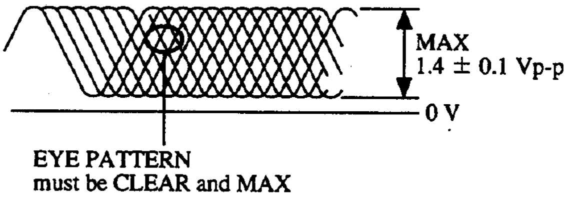
Note: Connect a probe (10: 1) of the oscilloscope or the frequency counter to a test point.

1. Focus Bias Adjustment

Make the focus bias adjustment when replacing and repairing the optical block.

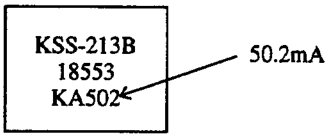


1) Connect an oscilloscope to test points TP1 (RF) and TP2 (VREF).
2) Turn on the power switch.
3) Insert test disc TCD-782 (YEDS-18) and play back the second composition.
4) Adjust SFR101 so that RF signal of test point TP1 (RF) is MAX and CLEARREST.



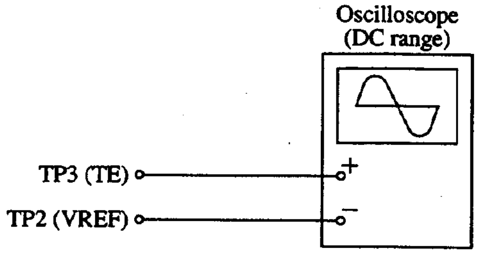
VOLT/DIV : 50mV
TIME/DIV : 0.5µS

Note: The current of the laser signal can be checked with the voltages on both sides of R127 (10Ω). The difference for the specified value shown on the level must be within ± 6.0mA.

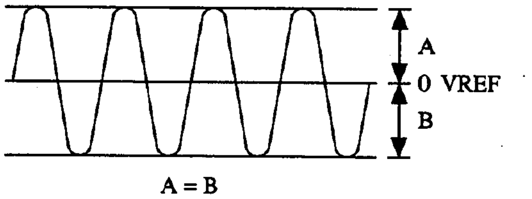


$$\text{Laser current Iop} = \frac{\text{Voltage across R127}}{10\Omega}$$

2. Tracking Balance Adjustment



1) Connect an oscilloscope to test points TP3 (TE) and TP2 (VREF).
2) Turn on the power switch.
3) Insert test disc TCD-782 (YEDS-18) and press the PLAY button.
4) Adjust SFR103 to decrease the tracking gain.
5) Adjust SFR102 so that the waveform on the oscilloscope is vertically symmetrical as shown in the figure below.
6) After the adjustment is completed, remove the connected lead wires from the terminals.



VOLT/DIV : 20mV
TIME/DIV : 1mS

3. Tracking Gain Adjustment

A servo analyzer is necessary in order to perform this adjustment exactly. However, this gain has a margin, so even if it is slightly off, there is no problem. Therfore, do not perform this adjustment.
Focus/tracking gain determines the pick-up follow-up (vertical and horizontal) relative to mechanical noise and mechanical shock when 2-axis device operates. However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is raised, the noise increases when the 2-axis device operates.
- When gain is lowered, it is more susceptible to mechanical shock and skipping occurs more easily.

When the gain adjustment is off, the symptoms below appear.

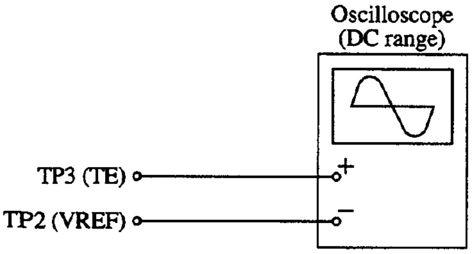
| Gain<br>Symptoms | (Focus) | Tracking |
|---|---|---|
| ● The time until music starts becomes longer for STOP→ ▶PLAY or automatic selection (⏮, ⏭ buttons pressed.) (Normally takes about 2 seconds.) | low | low or high |
| ● Music does not start and disc continues to rotate for STOP →▶PLAY or automatic selection (⏮, ⏭ buttons pressed.) | — | low |
| ● Disc stops to rotate shortly after STOP→▶PLAY. | low or high | — |
| ● Sound is interrupted during PLAY. Or time counter display stops. | — | low |
| ● More noises during the 2-axis device operation. | high | high |

The following is simple adjustment method.

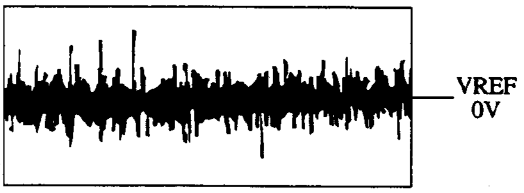
— Simple adjustment —

Note: Since the exact adjustment cannot be performed, remember the positions of the controls before the performing the adjustment. If the positions after the simple adjustment are only a little different, return the controls to the original position.

Procedure:



1) Keep the set horizontal. (If the set is not kept horizontally, this adjustment cannot be performed due to the gravity against the 2-axis device.)
2) Insert test disc TCD-782 (YEDS-18) and play back the second composition.
3) Connect an oscilloscope to TP3 (TE), TP2 (VREF) of the CD MECHA C.B.
4) Adjust SFR103 so that the waveform appears as shown in the figure below. (tracking gain adjustment)

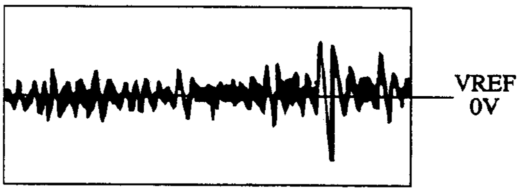


VOLT/DIV: 50 mV
TIME/DIV: 1mS

- Incorrect example

Low tracking gain

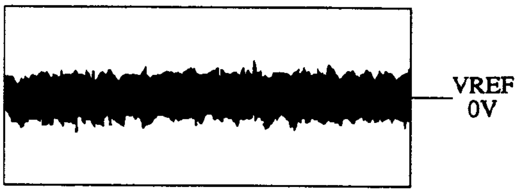
The fundamental wave appears as compared with the waveform adjusted.



VOLT/DIV: 50 mV
TIME/DIV: 1mS

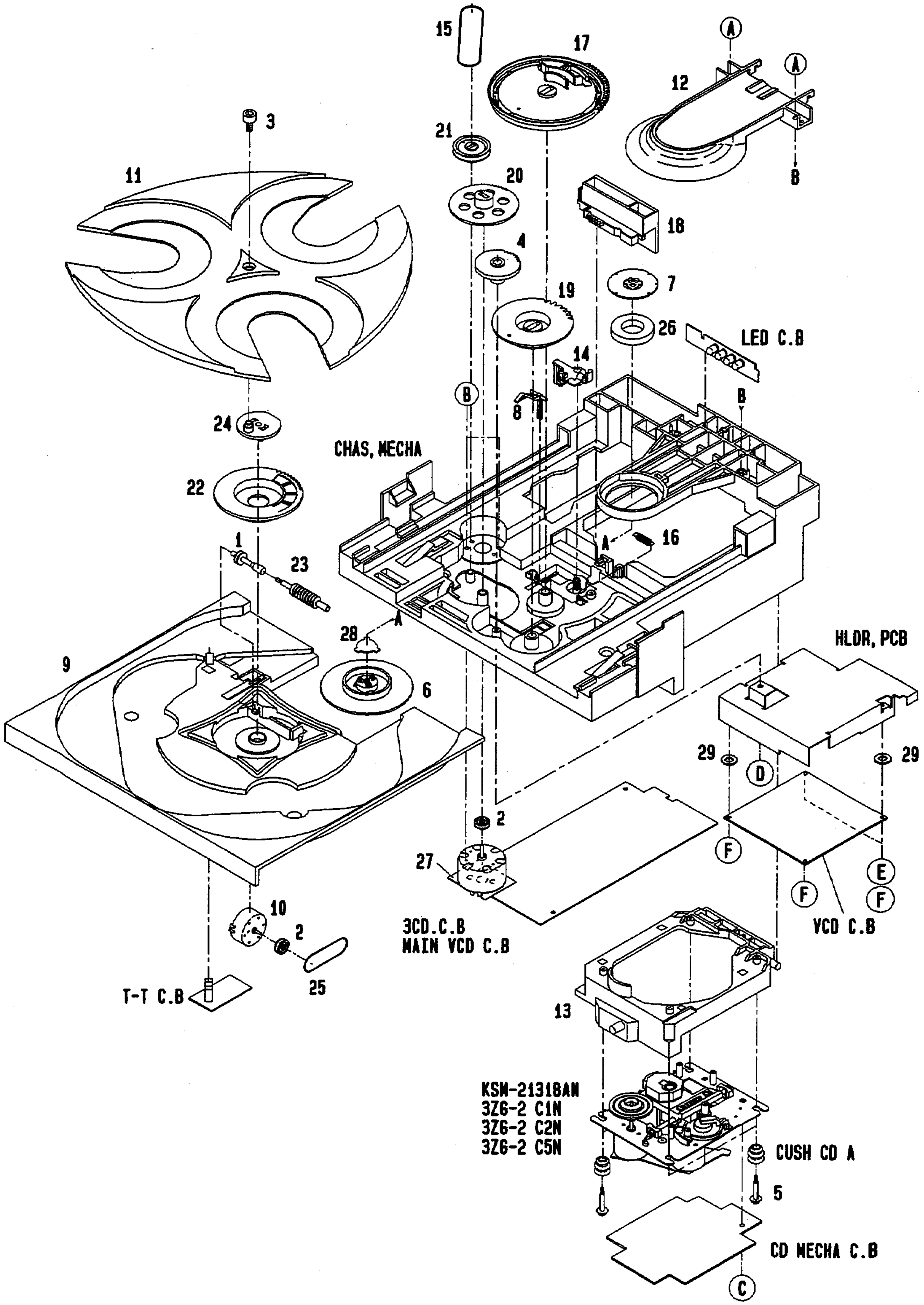
High tracking gain

The frequency of the fundamental wave is higher than that in low gain.



VOLT/DIV: 50 mV
TIME/DIV: 1mS

# MECHANICAL EXPLODED VIEW 1 / 1

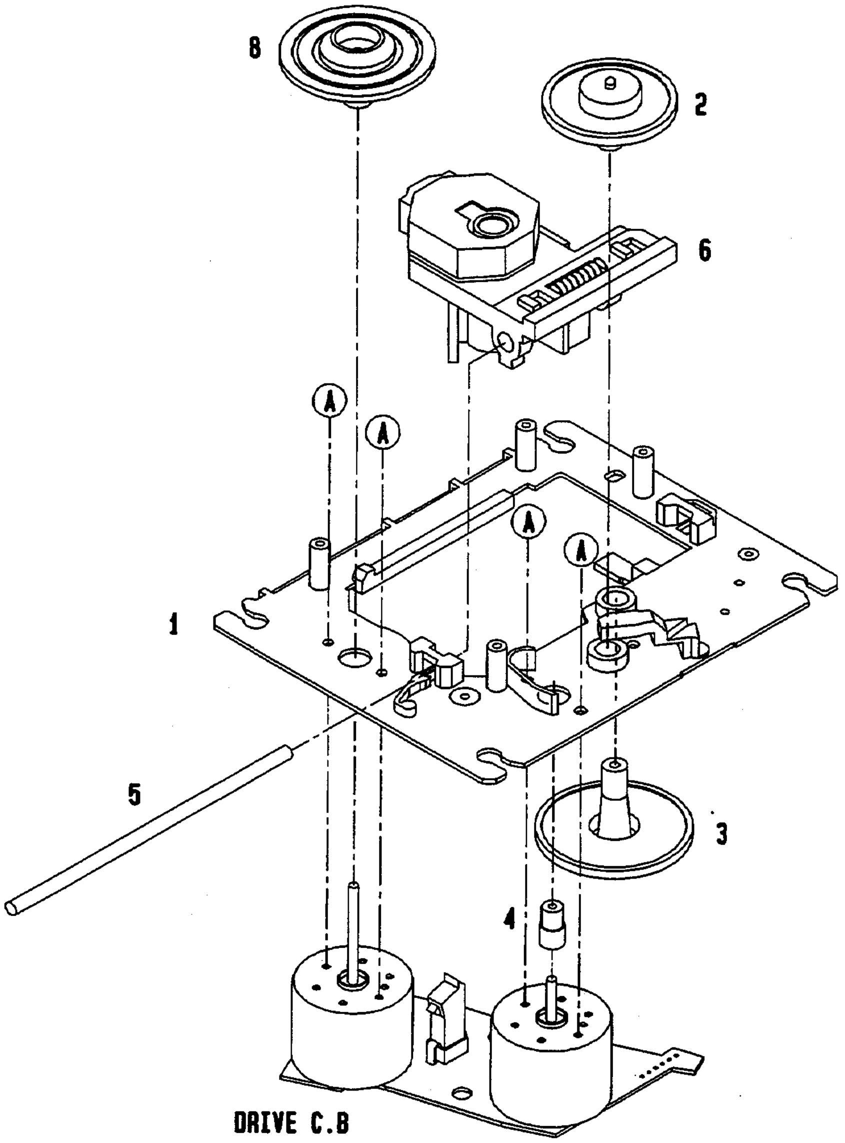

15
17
Ⓐ
Ⓐ
12
3
21
B
11
20
18
4
7
19
26
LED C.B
14
Ⓑ
8
B
24
CHAS, MECHA
22
16
A
1
23
28
A
HLDR, PCB
9
6
29
Ⓓ
29
2
Ⓕ
27
Ⓔ
Ⓕ
Ⓕ
10
VCD C.B
3CD.C.B
MAIN VCD C.B
2
25
T-T C.B
13
KSM-2131BAM
3Z6-2 C1N
3Z6-2 C2N
3Z6-2 C5N
CUSH CD A
5
CD MECHA C.B
Ⓒ

# MECHANICAL PARTS LIST 1／1

DESCRIPTIONで判断できない物は “REFERENCE NAME LIST” を参照してください。
If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

| REF. NO | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 84-ZG1-239-11K | | PULLY,WORM N |
| 2 | 81-ZG1-212-01K | | PULLY,LOAD MO |
| 3 | 81-ZG1-239-019 | | S-SCREW,TT |
| 4 | 81-ZG1-291-019 | | GEAR,TRAY RELAY NO3 |
| 5 | 81-ZG1-271-019 | | S-SCREW,MECH REAR |
| 6 | 81-ZG1-277-219 | | HLDR,MAGNET N |
| 7 | 81-ZG1-255-119 | | PLATE,MAGNET MK2 |
| 8 | 83-ZG3-213-019 | | LVR,SW |
| 9 | 84-ZG1-003-219 | | TRAY,NO2-B |
| 10 | 87-045-364-019 | | MOTOR,(BCH3B14) |
| 11 | 84-ZG1-005-119 | | TURNTABLE,NO1 |
| 12 | 84-ZG1-010-019 | | IND,CD N<V3L,V4L> |
| 12 | 84-ZG1-011-019 | | REFLECTOR,CD<A,B,Z,V5> |
| 13 | 84-ZG1-212-119 | | HLDR,MECHA NO2 |
| 14 | 84-ZG1-208-019 | | LEVER,CAM |
| 15 | 84-ZG1-209-010 | | BELT,SQ1.8-117.7 |
| 16 | 84-ZG1-211-019 | | SPR-E CAM S |
| 17 | 84-ZG1-215-219 | | GEAR,MAIN CAM BLU |
| 18 | 84-ZG1-216-219 | | SLIDE,MECHA CAM YEL |
| 19 | 84-ZG1-205-119 | | GEAR,TRAY |
| 20 | 84-ZG1-206-119 | | GEAR,RELAY |
| 21 | 84-ZG1-219-019 | | PULLY,RELAY BGE |
| 22 | 84-ZG1-221-019 | | GEAR,MAIN TT |
| 23 | 84-ZG1-238-01K | | GEAR,WORM N |
| 24 | 84-ZG1-224-019 | | LEVER,TT |
| 25 | 84-ZG1-225-010 | | BELT,SQ1.0-63.3 |
| 26 | 87-036-326-010 | | MAGNET,CLAMPER 93<A,B,Z,WR,V5> |
| 26 | 83-ZG3-602-010 | | RING,MAG<V3L,V4L> |
| 27 | 80-CD3-214-019 | | CUSH CD A |
| 28 | 84-ZG1-248-019 | | SPR-C,WORM |
| 29 | 82-DW1-220-019 | | SPACER,DIA 3.6-8-0.24<V3L> |
| A | 87-067-703-019 | | BVT2+3-10 (W/0 SLOT)<EXCEPT WR> |
| B | 87-251-070-419 | | U+2.6-3<Z> |
| C | 87-342-036-219 | | UT2+2-8<V3L,V4L,V5> |
| D | 87-067-579-019 | | BVT 2+3-8 W/0 SLOT<V3L,V4L> |
| E | 81-557-598-010 | | UTT+2-5 C-TITE<V4L> |
| F | 87-067-767-019 | | BVTT+2.6-6<V3L> |
| G | 87-067-058-019 | | FW,3.2-8-0.5<V4L> |

# CD MECHANISM EXPLODED VIEW 1 ／ 1 (3ZG-2 C5N <WR>)

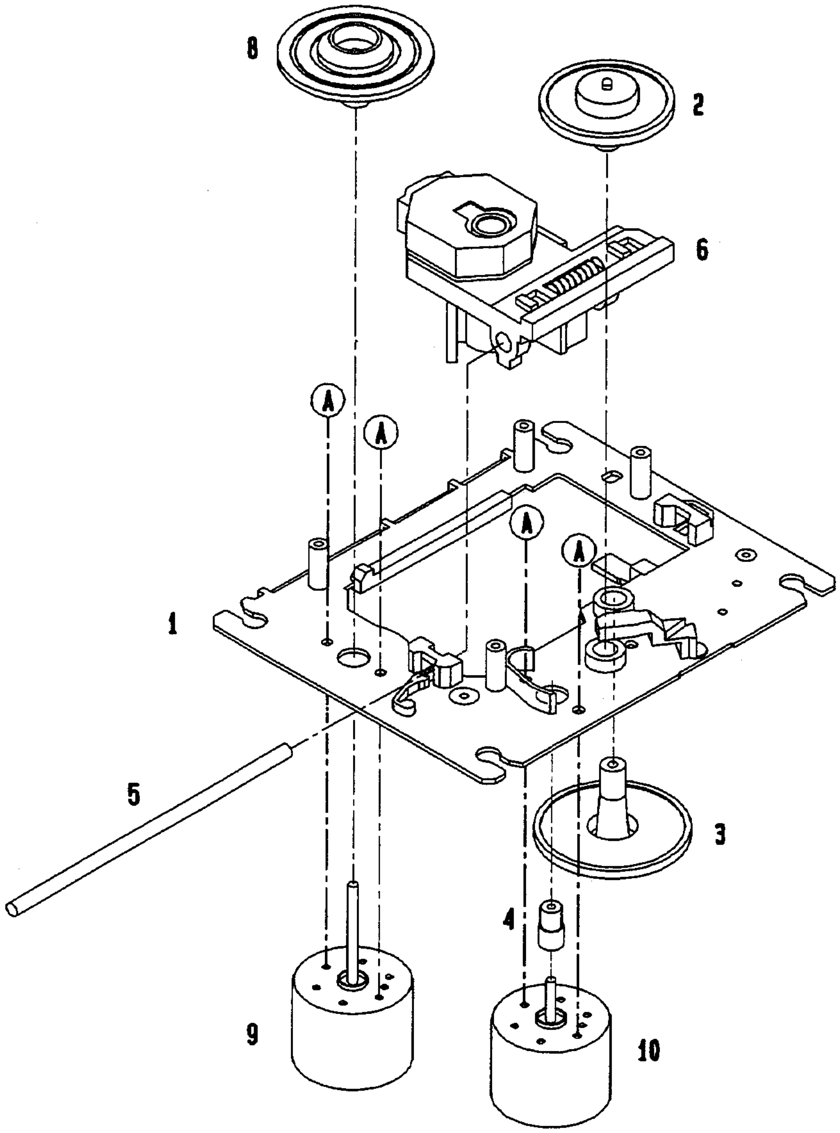


# CD MECHANISM PARTS LIST 1 ／ 1 (3ZG-2 C5N <WR>)

DESCRIPTIONで判断できない物は “REFERENCE NAME LIST” を参照してください。
If can’t understand for Description please kindly refer to “REFERENCE NAME LIST”.

| REF. NO | PART NO. | カンリ NO. | DESCRIPTION | REF. NO | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| 1 | 83-ZG2-202-71K | | O-SERT S ASSY,S | 6 | 87-070-445-010 | | PICK-UP,KSS-213B |
| 2 | 83-ZG2-204-419 | | GEAR,A | 8 | 83-ZG2-227-01K | | TURN TABLE,C1 |
| 3 | 83-ZG2-205-219 | | GEAR,B | A | 87-261-032-219 | | SCREW V+2-3 |
| 4 | 83-ZG2-220-01K | | GEAR MOTOR 2 | | | | |
| 5 | 83-ZG2-207-119 | | SHAFT,SLIDE | | | | |

## CD MECHANISM EXPLODED VIEW 1 ／ 1 (3ZG-2 C1N <V3L/V4L/V5>)



## CD MECHANISM PARTS LIST 1 ／ 1 (3ZG-2 C1N <V3L/V4L/V5>)

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

| REF. NO | PART NO. | カンリ NO. | DESCRIPTION | REF. NO | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| 1 | 83-ZG2-202-71K |  | O-SERT S ASSY,S | 6 | 87-070-445-010 |  | PICK-UP,KSS-213B |
| 2 | 83-ZG2-204-419 |  | GEAR,A | 8 | 83-ZG2-233-019 |  | TURN TABLE,A5 |
| 3 | 83-ZG2-205-219 |  | GEAR,B | 9 | 87-045-358-019 |  | MOT,RF-310T A 43 |
| 4 | 83-ZG2-220-01K |  | GEAR MOTOR 2 | 10 | 87-045-356-019 |  | MOT,RF-310T A 30 |
| 5 | 83-ZG2-207-119 |  | SHAFT,SLIDE | A | 87-261-032-219 |  | SCREW V+2-3 |

# 4ZG-1A

## ELECTRICAL MAIN PARTS LIST

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

| REF. NO. | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| IC | | | |
| | 87-070-294-019 | | IC,CXD2508AQ |
| | 87-017-745-019 | | IC,CXA1782BQ |
| | 87-017-888-089 | | IC,NJM4558MD |
| | 87-070-305-019 | | IC,BA6897S |
| | 87-001-982-019 | | IC,TA7291S |
| | 87-017-802-010 | | IC,LC7872E<G> |
| | 87-017-803-010 | | IC,LC32464P-80<G> |
| TRANSISTOR | | | |
| | 87-026-239-089 | | C-TR,DTC114TK |
| | 89-110-373-089 | | C-TR,2SA1037 S |
| | 89-420-052-089 | | TR 2SD2005Q (T105) |
| | 89-421-722-389 | | TR,2SD2172 V/W |
| | 89-320-011-089 | | TR,2SC2001K |
| | 87-026-223-089 | | C-TR,DTC143TK |
| | 89-113-187-089 | | TR,2SA1318TU |
| | 87-026-608-089 | | C-TR,DTC 123 JK |
| | 89-406-555-089 | | TR,2SD655E<G> |
| | 87-A30-039-040 | | C-TR,2SD1383K<D> |
| DIODE | | | |
| | 87-020-465-089 | | DIODE,1SS133 |
| | 87-020-330-089 | | C-DIODE,DAP202K |
| 3CD C.B | | | |
| C101 | 87-010-194-089 | | C-CAP,S 0.047-25 F |
| C102 | 87-010-180-089 | | C-CAP,S 1500P-50 B |
| C103 | 87-018-134-089 | | CAP,TC-U 0.01-16 Y |
| C104 | 87-012-156-089 | | C-CAP,S 220P-50 CH |
| C105 | 87-015-698-049 | | CAP,E 4.7-50 7L |
| C106 | 87-010-060-049 | | CAP,E 100-16 7L |
| C107 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C108 | 87-016-461-089 | | C-CAP,S 0.47-16 F |
| C109 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C115 | 87-010-318-089 | | C-CAP,S 47P-50 CH |
| C116 | 87-010-318-089 | | C-CAP,S 47P-50 CH |
| C117 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C118 | 87-010-260-089 | | CAP,E 47-25 SME |
| C119 | 87-018-134-089 | | CAP,TC-U 0.01-16 Y<EXCEPT G> |
| C120 | 87-018-209-080 | | CAP,TC-U 0.1-50 F |
| C121 | 87-018-134-089 | | CAP,TC-U 0.01-16 Y |
| C151 | 87-010-182-089 | | C-CAP,S 2200P-50 B |
| C152 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C153 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C154 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C155 | 87-010-404-089 | | CAP,E 4.7-50 SME |
| C156 | 87-010-193-089 | | C-CAP,S 0.033-25 F |
| C157 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C158 | 87-010-401-089 | | CAP,E 1-50 SME |
| C159 | 87-010-382-089 | | CAP,E 22-25 SME |
| C160 | 87-010-213-089 | | C-CAP,S 0.015-25 B |
| C161 | 87-018-134-089 | | CAP,TC-U 0.01-16 Y |
| C162 | 87-010-263-089 | | CAP,E 100-10 SME 5X11 |
| C163 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C164 | 87-010-193-089 | | C-CAP,S 0.033-25 F |
| C165 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C166 | 87-010-193-089 | | C-CAP,S 0.033-25 F |
| C167 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C169 | 87-010-150-089 | | C-CAP,S 6P-50 CH |
| C170 | 87-010-263-089 | | CAP,E 100-10 SME 5X11 |
| C171 | 87-010-178-089 | | C-CAP,S 1000P-50 B |
| C172 | 87-010-198-089 | | C-CAP,S 0.022-25 B |
| C173 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C174 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C175 | 87-010-263-089 | | CAP,E 100-10 SME 5X11 |
| C176 | 87-010-248-089 | | CAP,E 220-10 SME |
| C177 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C178 | 87-010-260-089 | | CAP,E 47-25 SME |
| C179 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C180 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C201 | 87-010-318-089 | | C-CAP,S 47P-50 CH |
| C202 | 87-010-318-089 | | C-CAP,S 47P-50 CH |
| C203 | 87-010-321-089 | | C-CAP,S 82P-50 CH |
| C204 | 87-010-321-089 | | G-CAP,S 82P-50 CH |
| C205 | 87-010-321-089 | | C-CAP,S 82P-50 CH |
| C206 | 87-010-321-089 | | C-CAP,S 82P-50 CH |
| C207 | 87-012-153-089 | | C-CAP,S 120P-50 CH |
| C208 | 87-012-153-089 | | C-CAP,S 120P-50 CH |
| C209 | 87-012-153-089 | | C-CAP,S 120P-50 CH |
| C210 | 87-012-153-089 | | C-CAP,S 120P-50 CH |
| C211 | 87-010-405-049 | | CAP,E 10-50 SME |
| C212 | 87-010-405-049 | | CAP,E 10-50 SME |
| C213 | 87-010-186-089 | | C-CAP,S 4700P-50 B |
| C214 | 87-010-186-089 | | C-CAP,S 4700P-50 B |
| C231 | 87-010-112-089 | | CAP,E 100-16 11L |
| C232 | 87-010-060-049 | | CAP,E 100-16 7L |
| C301 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C302 | 87-010-260-089 | | CAP,E 47-25 SME |
| C501 | 87-010-221-049 | | CAP,E 470-10 SME |
| C502 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C503 | 87-010-263-089 | | CAP,E 100-10 SME 5X11 |
| C504 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C505 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C506 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C507 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C508 | 87-010-221-049 | | CAP,E 470-10 SME |
| C509 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C510 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C511 | 87-010-185-089 | | C-CAP,S 3900P-50 B |
| C601 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C602 | 87-010-381-089 | | CAP,E 330-16 SME |
| C603 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C604 | 87-010-137-080 | | CAP,E,22-16 BP |
| C701 | 87-010-322-089 | | C-CAP,S 100P-50 CH |
| C702 | 87-010-322-089 | | C-CAP,S 100P-50 CH |
| C703 | 87-010-318-089 | | C-CAP,S 47P-50 CH |
| C704 | 87-010-178-089 | | C-CAP,S 1000P-50 B |
| C705 | 87-010-178-089 | | C-CAP,S 1000P-50 B |
| C712 | 87-010-982-049 | | CAP,E 33-25 GAS |
| C801 | 87-010-197-089 | | C-CAP,S 0.01-25 B<G> |
| C802 | 87-010-260-089 | | CAP,E 47-25 SME<G> |
| C803 | 87-010-194-089 | | C-CAP,S 0.047-25 F<G> |
| C804 | 87-010-260-089 | | CAP,E 47-25 SME<G> |
| C805 | 87-018-134-089 | | CAP,TC-U 0.01-16 Y<G> |
| C806 | 87-010-260-089 | | CAP,E 47-25 SME<G> |
| C807 | 87-010-405-089 | | CAP,E 10-50 SME<G> |
| C808 | 87-010-197-089 | | C-CAP,S 0.01-25 B<G> |
| C809 | 87-010-405-049 | | CAP,E 10-50 SME<G> |
| C810 | 87-010-313-089 | | C-CAP,S 18P-50 CH<G> |
| C811 | 87-010-314-089 | | C-CAP,S 22P-50 CH<G> |
| C812 | 87-010-313-089 | | C-CAP,S 18P-50 CH<G> |
| C813 | 87-010-315-089 | | C-CAP,S 27P-50 CH<G> |

| REF. NO. | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| C814 | 87-010-197-089 | | C-CAP,S 0.01-25 B<G> |
| C815 | 87-010-260-049 | | CAP,E 47-25 SME<G> |
| C816 | 87-010-404-089 | | CAP,E 4.7-50 SME<G> |
| C817 | 87-010-221-089 | | CAP,E 470-10<G> |
| C818 | 87-010-196-089 | | C-CAP,S 0.1-25 F<G> |
| C819 | 87-010-321-089 | | C-CAP,S 82P-50 CH<G> |
| C820 | 87-010-178-089 | | C-CAP,S 1000P-50 B<G> |
| C821 | 87-010-196-089 | | C-CAP,S 0.1-25 F<G> |
| C822 | 87-010-197-089 | | C-CAP,S 0.01-25 B<G> |
| C901 | 87-010-260-089 | | CAP,E 47-25 SME<D> |
| C902 | 87-010-196-089 | | C-CAP,S 0.1-25 F<D> |
| CON2 | 84-ZG1-616-019 | | CONN ASSY,6P H |
| EMI801 | 87-008-474-089 | | F-BEAD,EMI BL02RN1<G> |
| EMI802 | 87-008-474-089 | | F-BEAD,EMI BL02RN1<G> |
| FC1 | 85-NFT-611-119 | | FF-CABLE,16P-1.0 |
| FC4 | 84-ZG1-614-219 | | CABLE,FFC 5P-1.25 |
| J801 | 87-009-502-010 | | JACK,PIN 1PY EARTH<G> |
| LED901 | 87-A40-123-019 | | LED,SLZ-8128A-01-B<D> |
| M601 | 87-045-305-019 | | MOTOR, RF-500TB |
| R177 | 87-022-365-089 | | C-RES,S 100K-1/10W F |
| R178 | 87-022-363-089 | | C-RES,S 68K-1/10W F |
| R179 | 87-022-363-089 | | C-RES,S 68K-1/10W F |
| R180 | 87-022-363-089 | | C-RES,S 68K-1/10W F |
| R181 | 87-022-363-089 | | C-RES,S 68K-1/10W F |
| R182 | 87-022-365-089 | | C-RES,S 100K-1/10W F |
| R401 | 87-022-186-089 | | C-RES,82-1/4W J |
| R403 | 87-022-186-089 | | C-RES,82-1/4W J |
| SFR151 | 87-024-175-089 | | SFR,47K DIA6 V |
| SFR152 | 87-024-176-089 | | SFR,100K DIA6 V |
| SFR153 | 87-024-176-089 | | SFR,100K DIA6 V |

| REF. NO. | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| SW701 | 87-036-109-019 | | SW,PUSH SPPB 61 |
| SW702 | 87-036-109-019 | | SW,PUSH SPPB 61 |
| X101 | 87-030-402-089 | | VIB,XTAL 16.9344 MHZ |
| X801 | 80-JUC-602-089 | | VIB,XTAL 17.73MHZ<G> |
| X802 | 80-JUC-601-089 | | VIB,XTAL 14.31MHZ<G> |

LED C.B

| REF. NO. | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| LED701 | 87-070-200-089 | | LED,SLP636C-81-S-T1 |
| LED702 | 87-017-350-080 | | LED,SEL1550CM |
| LED703 | 87-017-350-080 | | LED,SEL1550CM |
| LED704 | 87-070-200-089 | | LED,SLP636C-81-S-T1 |

T-T C.B

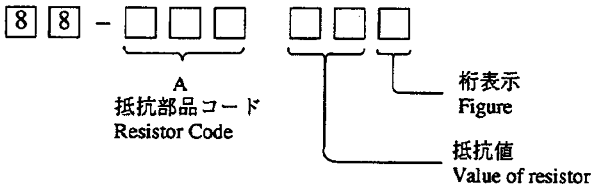
| REF. NO. | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| C401 | 87-018-214-089 | | CAP TC U 0.1-50 F |
| M401 | 87-045-364-019 | | MOTOR,(BCH3B14) |
| PS401 | 87-026-573-019 | | P-SNSR,GP1S53V |

MOTOR C.B

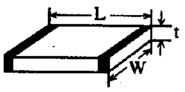
| REF. NO. | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| M2 | 9X-262-513-210 | | SLED MOTOR ASSY |
| PIN3 | 91-564-722-110 | | CONNECTOR 6P |
| SW1 | 91-572-085-110 | | LEAF SW |

○ チップ抵抗部品コード／CHIP RESISTOR PART CODE

チップ抵抗部品コードの成り立ち
Chip Resistor Part Coding



チップ抵抗
Chip resistor

| 容量 Wattage | 種類 Type | 許容誤差 Tolerance | 記号 Symbol | 寸法／Dimensions (mm) | | | | 抵抗コード：A Resistor Code: A |
|---|---|---|---|---|---|---|---|---|
| | | | | 外形／Form | L | W | t | |
| 1／16W | 1608 | ±5% | CJ |  | 1.6 | 0.8 | 0.45 | 108 |
| 1／10W | 2125 | ±5% | CJ | | 2 | 1.25 | 0.45 | 118 |
| 1／8W | 3216 | ±5% | CJ | | 3.2 | 1.6 | 0.55 | 128 |

## Refer to the following pages for the 4ZG-1 and the common sections.

### ■ IC DESCRIPTION

CXA1782BQ .......................................................... See page 64
LC7872E ................................................................. See page 62

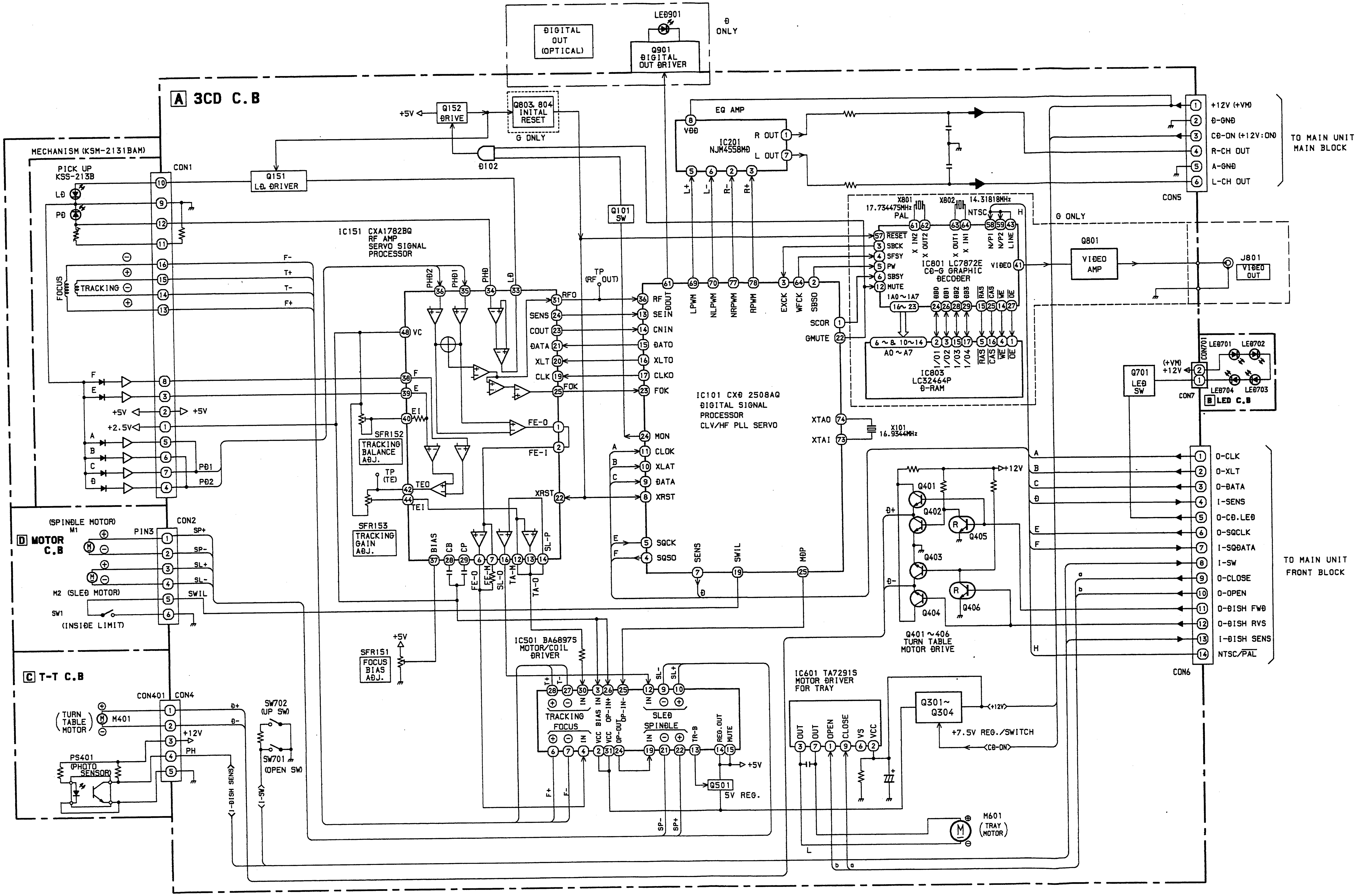
### ■ MECHANICAL EXPLODED VIEW 1／1

See page 95

### ■ MECHANICAL PARTS LIST 1／1

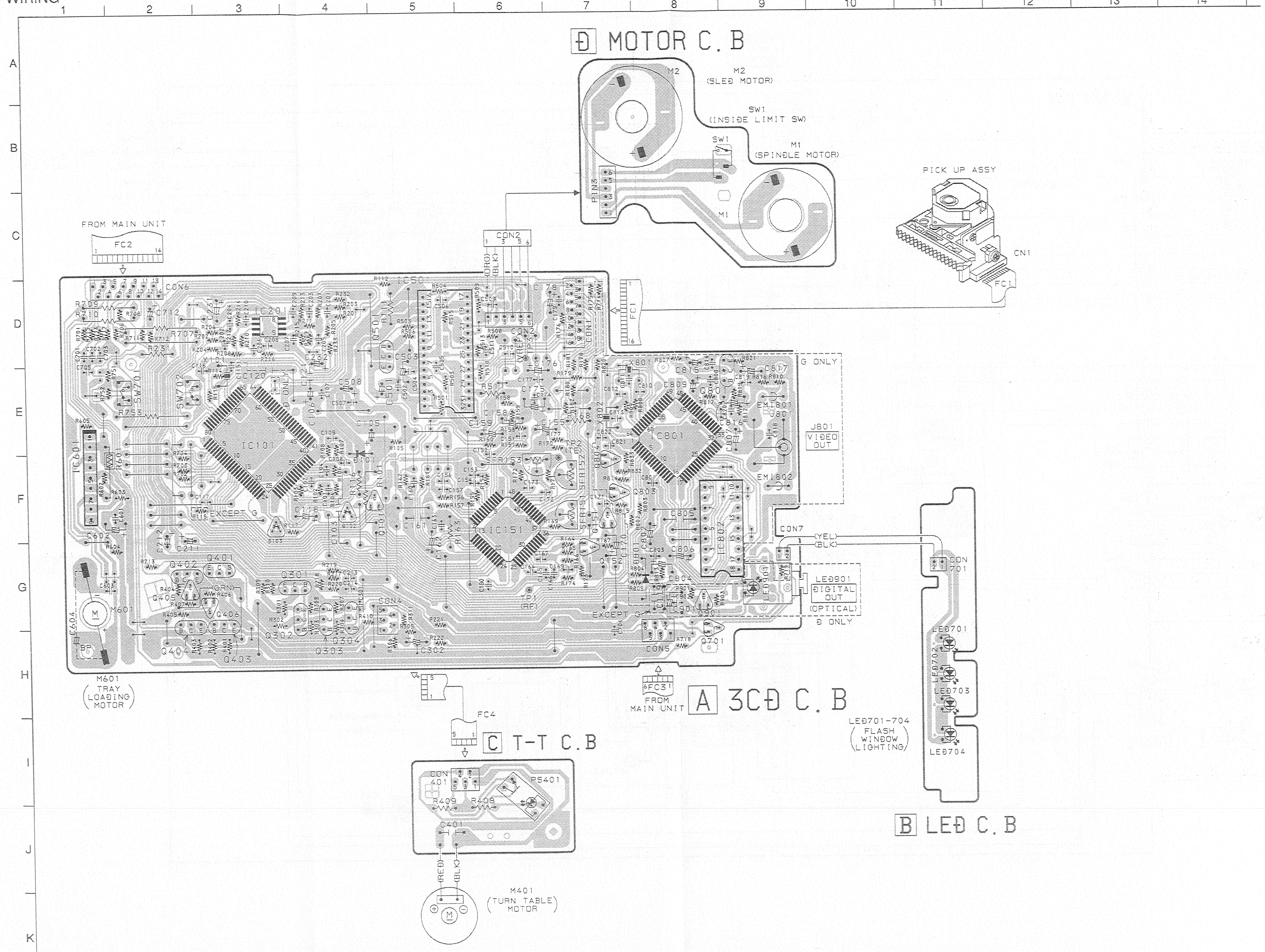
See page 96

# BLOCK DIAGRAM

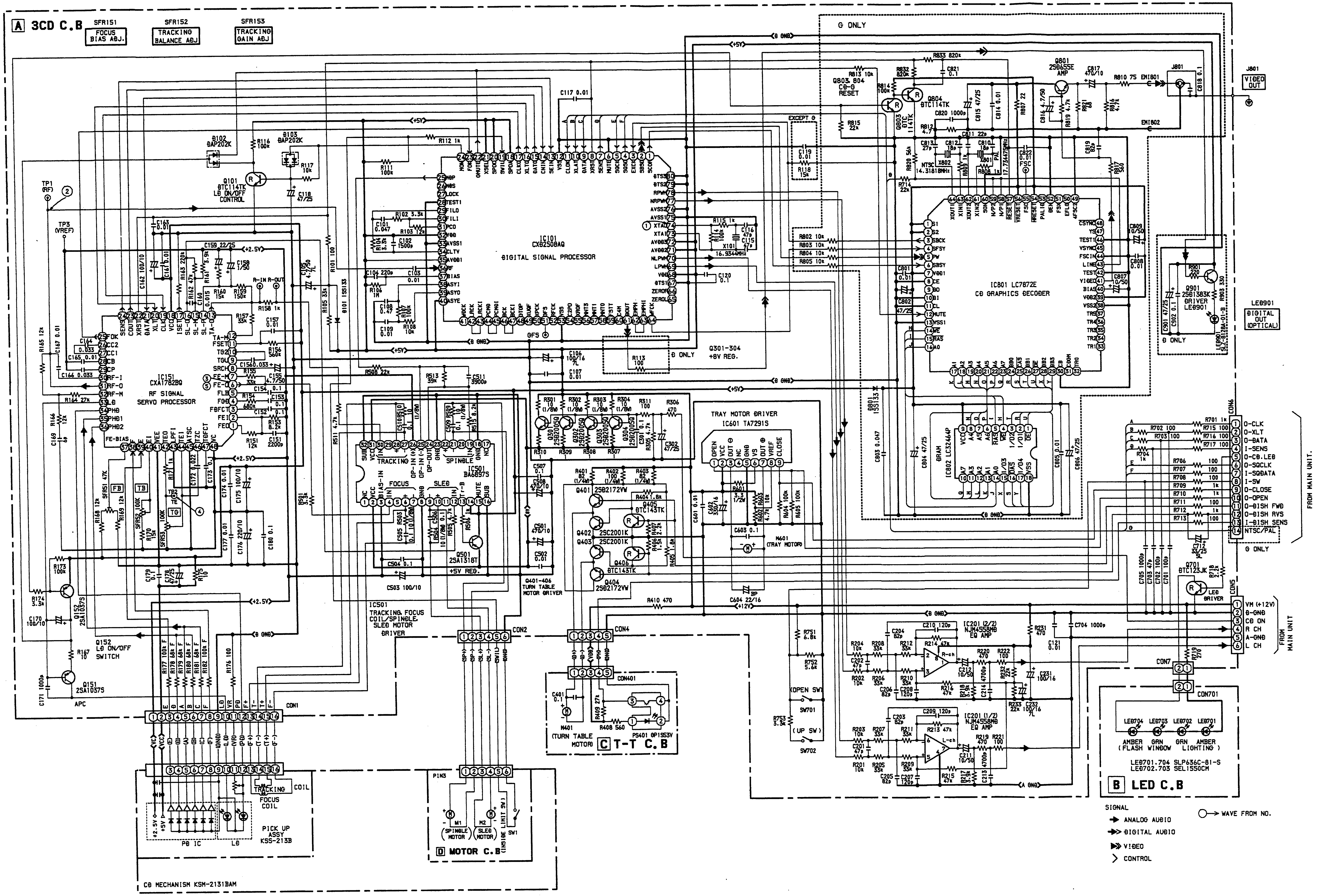


DIGITAL OUT (OPTICAL)
LED901
Q901 DIGITAL OUT DRIVER
D ONLY
A 3CD C.B
Q152 DRIVE
+5V
Q803, 804 INITAL RESET
G ONLY
D102
Q151 LD DRIVER
MECHANISM (KSM-2131BAM)
PICK UP KSS-213B
LD
PD
CON1
FOCUS
TRACKING
IC151 CXA1782BQ RF AMP SERVO SIGNAL PROCESSOR
PHD2
PHD1
PHD
LD
RFO
SENS
COUT
DATA
XLT
CLK
FOK
VC
F
E
EI
SFR152 TRACKING BALANCE ADJ.
TP (TE)
TEO
TEI
SFR153 TRACKING GAIN ADJ.
FE-O
FE-I
XRST
BIAS
CB
CP
FE-O
FE-M
SL-O
TA-M
TA-O
SL-P
TP (RF OUT)
Q101 SW
EQ AMP
VDD
IC201 NJM4558MD
R OUT
L OUT
L+
L-
R-
R+
IC101 CXD 2508AQ DIGITAL SIGNAL PROCESSOR CLV/HF PLL SERVO
RF
SEIN
CNIN
DATA
XLTO
CLKO
FOK
MON
CLOK
XLAT
DATA
XRST
SQCK
SQSO
SENS
SWIL
MDP
DOUT
LPWM
NLPWM
NRPWM
RPWM
EXCK
WFCK
SBSO
SCOR
GMUTE
XTAO
XTAI
X101 16.9344MHz
X801 17.734475MHz PAL
X802 14.31818MHz NTSC
IC801 LC7872E CD-G GRAPHIC DECODER
RESET
SBCK
SFSY
PW
SBSY
MUTE
IA0~IA7
VIDEO
IC803 LC32464P D-RAM
A0~A7
I/O1
I/O2
I/O3
I/O4
RAS
CAS
WE
OE
G ONLY
Q801 VIDEO AMP
J801 VIDEO OUT
CON5
+12V (+VM)
D-GND
CD-ON (+12V:ON)
R-CH OUT
A-GND
L-CH OUT
TO MAIN UNIT MAIN BLOCK
CON701
LED701
LED702
LED704
LED703
CON7
B LED C.B
Q701 LED SW
(+VM) +12V
Q401
Q402
Q403
Q404
Q405
Q406
Q401~406 TURN TABLE MOTOR DRIVE
CON6
O-CLK
O-XLT
O-DATA
I-SENS
O-CD.LED
O-SQCLK
I-SQDATA
I-SW
O-CLOSE
O-OPEN
O-DISH FWD
O-DISH RVS
I-DISH SENS
NTSC/PAL
TO MAIN UNIT FRONT BLOCK
D MOTOR C.B
(SPINDLE MOTOR) M1
PIN3
CON2
SP+
SP-
SL+
SL-
SWIL
M2 (SLED MOTOR)
SW1 (INSIDE LIMIT)
SFR151 FOCUS BIAS ADJ.
IC501 BA6897S MOTOR/COIL DRIVER
TRACKING
FOCUS
SLED
SPINDLE
VCC
BIAS IN
OP-IN+
OP-IN-
OP-OUT
TR-B
REG.OUT
MUTE
Q501 5V REG.
C T-T C.B
CON401
CON4
TURN TABLE MOTOR
M401
+12V
PH
PS401 (PHOTO SENSOR)
SW702 (UP SW)
SW701 (OPEN SW)
(I-DISH SENS)
(I-SW)
IC601 TA7291S MOTOR DRIVER FOR TRAY
OUT
OPEN
CLOSE
VS
VCC
Q301~Q304
(+12V)
+7.5V REG./SWITCH
(CD-ON)
M601 (TRAY MOTOR)

WIRING

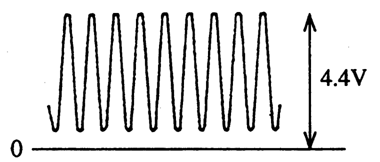

1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
J
K
D MOTOR C. B
M2
M2 (SLED MOTOR)
SW1 (INSIDE LIMIT SW)
SW1
M1 (SPINDLE MOTOR)
M1
PIN3
PICK UP ASSY
CN1
FC1
FROM MAIN UNIT
FC2
CON6
CON2
(ORG)
(BLK)
CON1
IC501
IC201
IC101
IC151
IC801
IC802
IC601
SW701
SW702
X801
X802
EM1801
EM1802
J801 VIDEO OUT
G ONLY
CON7
(YEL)
(BLK)
CON 701
LED901 DIGITAL OUT (OPTICAL)
D ONLY
EXCEPT G
TP1 (RF)
TP2
CON4
CON5
Q701
M601
M601 TRAY LOADING MOTOR
BP
FC4
FC3
FROM MAIN UNIT
A 3CD C. B
C T-T C.B
CON 401
PS401
R409
R408
C401
(RED)
(BL)
M401 (TURN TABLE MOTOR)
LED701
LED702
LED703
LED704
LED701-704 (FLASH WINDOW LIGHTING)
B LED C. B

# SCHEMATIC DIAGRAM

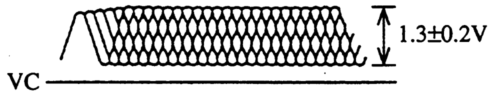

A 3CD C.B
SFR151 FOCUS BIAS ADJ.
SFR152 TRACKING BALANCE ADJ
SFR153 TRACKING GAIN ADJ
G ONLY
EXCEPT G
IC101 CXD2508AQ DIGITAL SIGNAL PROCESSOR
IC151 CXA1782BQ RF SIGNAL SERVO PROCESSOR
IC501 BA6897S
IC501 TRACKING, FOCUS COIL/SPINDLE, SLED MOTOR DRIVER
TRAY MOTOR DRIVER IC601 TA7291S
IC801 LC7872E CD GRAPHICS DECODER
IC802 LC3246AP DRAM
Q801 2SB655E AMP
Q803, 804 CD-G RESET
Q101 DTC114TK LD ON/OFF CONTROL
Q151 2SA1037S
Q152 LD ON/OFF SWITCH
Q501 2SA1318T +5V REG.
Q301-304 +8V REG.
Q401-406 TURN TABLE MOTOR DRIVER
Q901 2SB1383K DRIVER LED901
Q701 DTC123JK LED DRIVER
IC201 (2/2) NJM4558MD EQ AMP
IC201 (1/2) NJM4558MD EQ AMP
J801 VIDEO OUT
LED901 DIGITAL OUT (OPTICAL)
X101 16.9344MHz
X802 14.31818MHz
X801 17.734475MHz
TP1 (RF)
TP3 (VREF)
CON1
CON2
CON4
CON401
CON5
CON6
CON7
CON701
M601 (TRAY MOTOR)
M401 (TURN TABLE MOTOR)
PS401 DP1553V
C T-T C.B
SW701 (OPEN SW)
SW702 (UP SW)
PICK UP ASSY KSS-213B
PD IC
LD
TRACKING COIL
FOCUS COIL
M1 (SPINDLE MOTOR)
M2 (SLED MOTOR)
SW1 (INSIDE LIMIT SW)
D MOTOR C.B
CD MECHANISM KSM-2131BAM
LED704 LED703 LED702 LED701
AMBER (FLASH WINDOW) GRN GRN AMBER (LIGHTING)
LED701.704 SLP636C-81-S
LED702.703 SEL1550CM
B LED C.B
D-CLK
D-XLT
D-DATA
I-SENS
O-CD.LED
O-SQCLK
I-SQDATA
I-SW
O-CLOSE
O-OPEN
O-DISH FWD
O-DISH RVS
I-DISH SENS
NTSC/PAL
FROM MAIN UNIT
VM (+12V)
D-GND
CD ON
R CH
A-GND
L CH
FROM MAIN UNIT
SIGNAL
ANALOG AUDIO
DIGITAL AUDIO
VIDEO
CONTROL
WAVE FROM NO.

## WAVE FORM

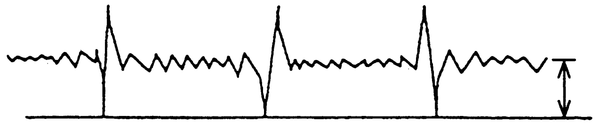
① SYSTEM CLOCK VOLT/DIV: 2V
IC101 Pin (74) (XTAO) TIME/DIV: 0.1µS
f=16.9344MHz



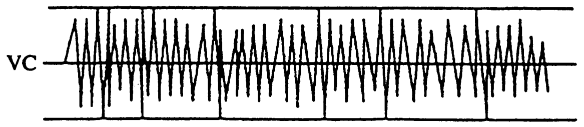
② RF VOLT/DIV: 500mV
TP1 (RF) TIME/DIV: 0.5µS



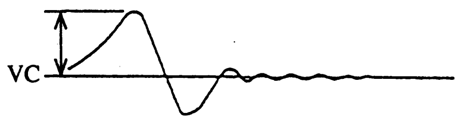
③ Focus VOLT/DIV: 200mV
IC151 Pin ⑥ (FE-O) TIME/DIV: 2mS



④ Tracking TIME/DIV: 1mS
TP2 (TE)

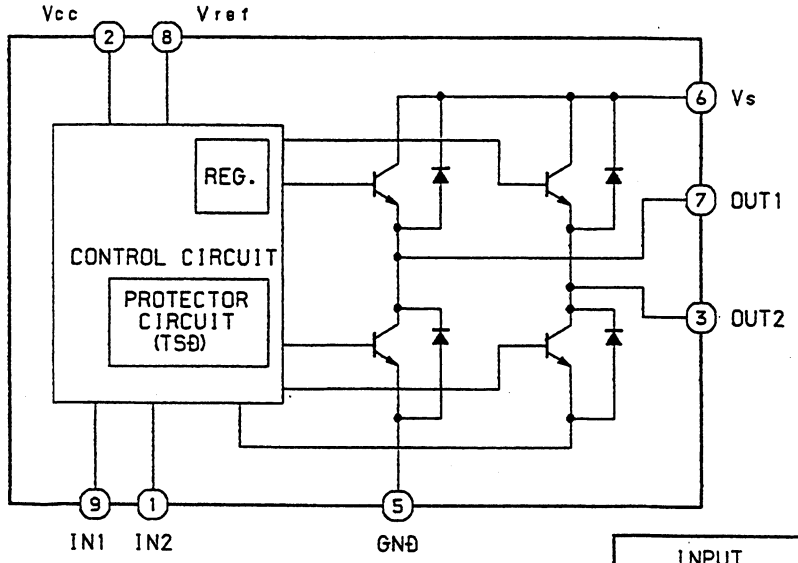


⑤ Focus Search
IC151 Pin ⑥ (FE-O)



## IC BLOCK DIAGRAM

### IC, TA7291



| INPUT | | OUTPUT | | MODE |
|---|---|---|---|---|
| IN1 | IN2 | OUT1 | OUT2 | |
| 0 | 0 | ∞ | ∞ | STOP |
| 1 | 0 | H | L | CW |
| 0 | 1 | L | H | CCW |
| 1 | 1 | L | L | BRAKE |

∞ : HI IMPEDANCE
NOTE : INPUT "H" ACTIVE

## IC DESCRIPTION

### IC, CXD2508AQ

| Pin No. | Pin name | I/O | Description |
|---|---|---|---|
| 1 | SCOR | O | 1H when the subcode sync S0 or S1 is detected. |
| 2 | SBSO | O | SUBP~W serial output. |
| 3 | EXCK | I | Clock input for SBSO read out. |
| 4 | SQSO | O | SUBQ 80-bit serial output. |
| 5 | SQCK | I | Clock input for SQSO read out. |
| 6 | MUTE | I | H to mute. L to cancel. |
| 7 | SENS | O | SENS signal output to CPU. |
| 8 | XRST | I | System reset. L to reset. |
| 9 | DATA | I | Serial data input from CPU . |
| 10 | XLAT | I | Latch input from CPU. Latching serial data at fall down. |
| 11 | CLOK | I | Clock input from CPU to transfer serial data. |
| 12 | VSS | — | GND. |
| 13 | SEIN | I | SENS input from SSP. |
| 14 | CNIN | I | Numbers of track jump are counted and input. |
| 15 | DATO | O | Serial data output to SSP. |
| 16 | XLTO | O | Serial data latched output to SSP. Latched at fall down edge. |
| 17 | CLKO | O | Clock input from SSP to transfer serial data. |
| 18, 20 | SPOA, C | I | Microprocessor expansion interface. |
| 19 | XTSL | I | X'tal selection input terminal. "L" at 16.9344MHz X'tal. "H" at 33.86888MHz. |
| 22 | XLON | O | Microprocessor expansion interface. |
| 23 | FOK | I | Focus OK input pin. Used for SENS output and servo auto sequencer. |
| 24 | MON | O | Spindle motor ON/OFF control output. |
| 25 | MDP | O | Spindle motor servo control output. |
| 26 | MDS | O | Spindle motor servo control output. |
| 27 | LOCK | O | GFS is sampled by 460Hz. H output when GFS is H. L output when GFS is L for 8 consecutive times. |
| 28 | TEST1 | I | TEST. (Connected to GND) |
| 29 | FILO | O | Filter output to master PLL. (slave=digital PLL) |
| 30 | FILI | I | Filter input to master PLL. |
| 31 | PCO | O | Charge-pump output to master PLL. |
| 32 | VDD | — | Power supply input. (+5V) |
| 33 | AVSS1 | — | GND. |
| 34 | CLTV | I | VCO control voltage input to master PLL. |
| 35 | AVDD1 | — | Power supply input. (+5V) |
| 36 | RF | I | EFM signal input. |
| 37 | BIAS | I | Constant current input to asymmetry correction circuit. |
| 38 | ASYI | I | Comparate voltage input to asymmetry correction circuit. |
| 39 | ASYO | O | EFM full swing output. (L=VSS, H=VDD) |
| 40 | ASYE | I | L: asymmetry correction OFF. H: asymmetry correction ON |
| 41 | WDCK | O | D/A interface, word clock (2Fs) for 48-bit slot. |
| 42 | LRCK | O | D/A interface, LR clock (Fs) for 48-bit slot. |

| Pin No. | Pin name | I/O | Description |
|---|---|---|---|
| 43 | LRCKI | I | LR clock input to DAC. (48-bit slot) |
| 44 | PCMD | O | D/A interface, serial data. (2's complement, MSB first) |
| 45 | PCMDI | I | Audio data input to DAC. (48-bit slot) |
| 46 | BCK | O | D/A interface, bit clock. |
| 47 | BCKI | I | Bit clock input to DAC. (48-bit slot) |
| 48 | GTOP | O | GTOP output. |
| 49 | XUGF | O | XUFG output. |
| 50 | XPCK | O | XPLCK output. |
| 51 | GFS | O | GFS output. |
| 52 | RFCK | O | RFCK output. |
| 53 | VSS | — | GND. |
| 54 | C2PO | O | C2PO output. |
| 55 | XROF | O | XRAOF output. |
| 56 | MNT3 | O | MNT3 output. |
| 57 | MNT1 | O | MNT1 output. |
| 58 | MNT0 | O | MNT0 output. |
| 59 | FSTT | O | Pins-73 and -74 divided-by 2/3 output. |
| 60 | C4M | O | 4.2336MHz output. |
| 61 | DOUT | O | Digital Out connector output signal. |
| 62 | EMPH | O | H when the playback disc has emphasis. L when it does not. |
| 63 | EMPHI | I | DAC emphasis ON/OFF. H when ON. L when OFF |
| 64 | WFCK | O | WFCK (WRITE FRAME CLOCK) output. |
| 65 | ZEROL | O | No sound data detection output. H (L-ch) when no sound data is detected. |
| 66 | ZEROR | O | No sound data detection output. H (R-ch) when no sound data is detected. |
| 67 | DTSI | I | TEST for DAC. (Normally "L") |
| 68 | VDD | — | Power supply input. (+5V) |
| 69 | NLPWM | O | L-ch PWM output. (reversed polarity) |
| 70 | LPWM | O | L-ch PWM output. (normal polarity) |
| 71 | AVDD2 | — | Power supply input to L-ch PWM driver. (Connected to +5V) |
| 72 | AVDD3 | — | Power supply input to X'tal. (Connected to +5V) |
| 73 | XTAI | I | X'tal input to 33.8688MHz oscillator circuit. |
| 74 | XTAO | O | 33.8688MHz X'tal oscillator circuit output. |
| 75 | AVSS1 | — | GND input to X'tal. (Connected GND) |
| 76 | AVSS2 | — | GND input to PWM driver. (Connected to GND) |
| 77 | NRPWM | O | R-ch PWM output. (reversed phase) |
| 78 | RPWM | O | R-ch PWM output. (normal phase) |
| 79 | DTS2 | I | TEST-2 for DAC. (Normally "L") |
| 80 | DTS3 | I | TEST-3 for DAC. (Normally "L") |

# TEST MODE

1. How to Activate CD Test Mode
   Insert the AC plug while pressing the function CD button.
   All FL display tubes will light up, and the test mode will be activated.

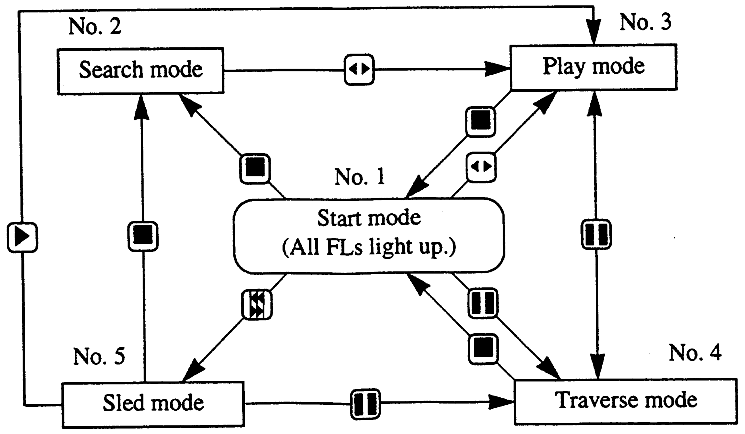
2. How to Cancel CD Test Mode
   Either one of the following operations will cancel the CD test mode.
   - Press the function button. (except CD function button)
   - Press the power switch button.
   - Disconnect the AC plug

3. CD Test Mode Functions
   When test mode is activated, the following mode functions from No.1 to No.5 can be used by pressing the operation keys.

| Mode/No. | Operation | FL display | Operation | Contents |
|---|---|---|---|---|
| Start mode<br>No.1 | Activation | All lamps light | • Test mode is activated.<br>• Laser diode turns always ON. (CD block power is ON.) | • FL display check (All displays light.)<br>• APC circuit check<br>• Laser current measurement (Laser current control. Across a resistor connected between emitter and GND.) |
| Search mode<br>No.2 | ■ key | CD-- | • Continual focus search (The pickup lens repeats the full-swing up-down motion.)<br>* Avoid continual searches that last for more than 10 minutes. * NOTE 1 | FOCUS SERVO<br>• Check focus search waveform<br>• Check focus error waveform (FOK/FZC are not monitored in the search mode) |
| Play mode<br>No.3 | ◀▶ key | CD 1 | • Normal playback<br>• Focus search is continued if TOC cannot be read. * NOTE 1 | FOCUS SERVO/TRACKING SERVO<br>CLV SERVO/SLED SERVO<br>Check FOK/FZC |
| Traverse mode<br>No.4 | ❚❚ key | CD 1 | • During normal disc playback<br>Press once; tracking servo OFF<br>Press twice; tracking servo ON<br>* NOTE 2 | TRACKING SERVO ON/OFF<br>Tracking balance (traverse) adjustment |
| Sled mode<br>No.5 | ⏮ key<br>⏭ | All lamps light | • Pickup moves to the outermost track<br>• Pickup moves to the innermost track<br>* NOTE 3<br>(During playback, machine operates normally.) | SLED SERVO<br>Check SLED mechanism operation |

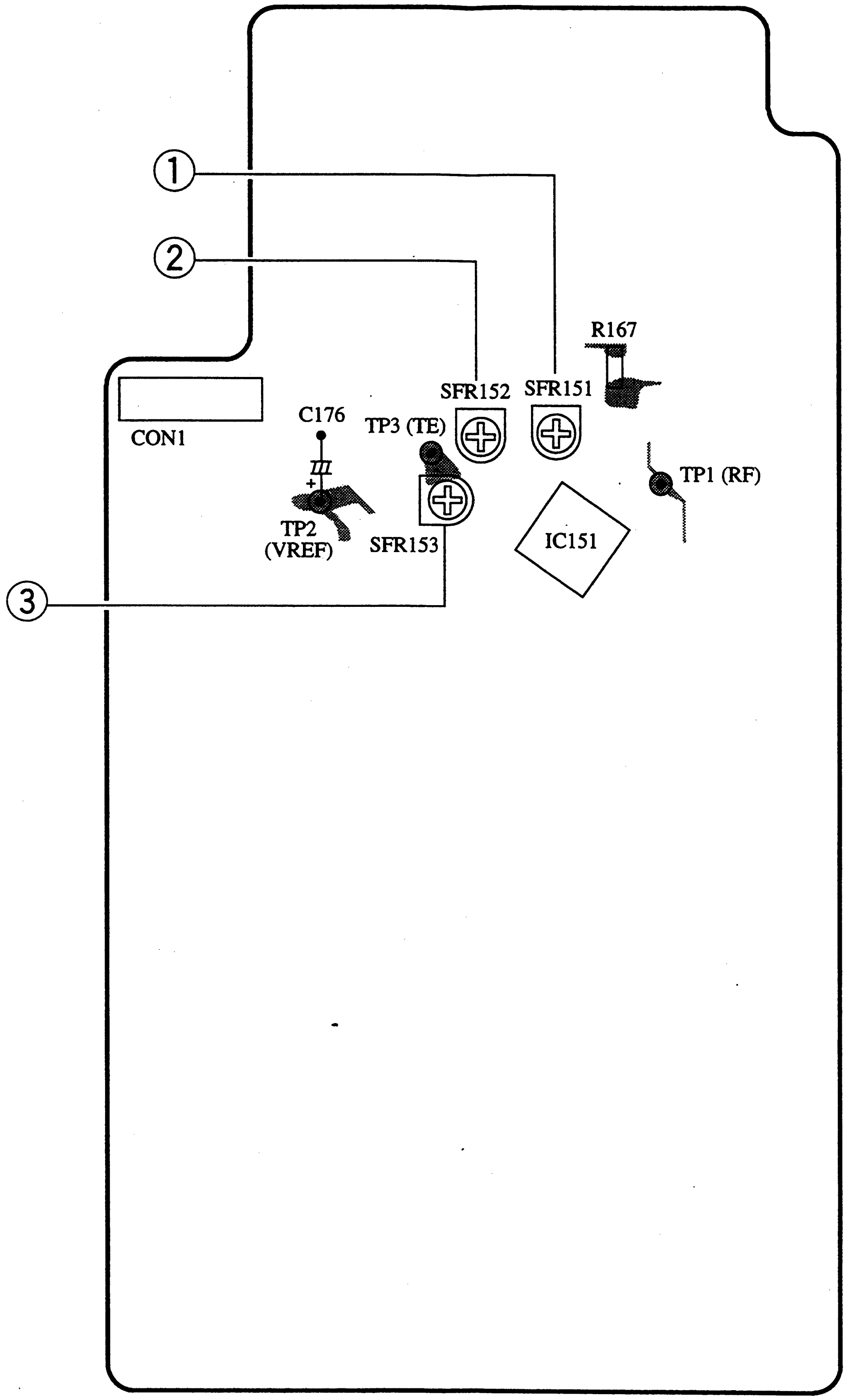
* NOTE 1: There are cases when the tracking servo cannot be locked owing to the protection circuit being operated when heat builds up in the driver IC if the focus search is operated continually for more than 10 minutes. In these cases the power supply should be switched off for 10 minutes until heat has been reduced and then re-started.
* NOTE 2: Do not press the ⏮ or ⏭ keys when the machine is in the ❚❚ status is active. If they are pressed, playback will not be possible after the ❚❚ status has been canceled. If the ⏮ or ⏭ keys are pressed in the ❚❚ status, press the ■ key and return to the start mode (No.1).
* NOTE 3: When pressing the ⏮ or ⏭ keys, take care to avoid damage to the gears. Because the sled motor is activated when the ⏮ or ⏭ keys are pressed, even when the pick-up is at the outermost or innermost track.

4. Operation Outline
   The operation of each mode is carried out in the direction of the arrows from the start mode as indicated in the following illustration.



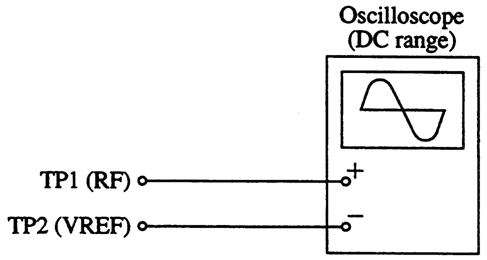
If the DISC DIRECT PLAY button is pressed, the machine performs the same operation as the PLAY button is pressed as shown. If the tray is opened by pressing OPEN/CLOSE button during Play mode or Traverse mode, the machine returns to the Start mode.

## A 3CD C.B (PATTERN SIDE)

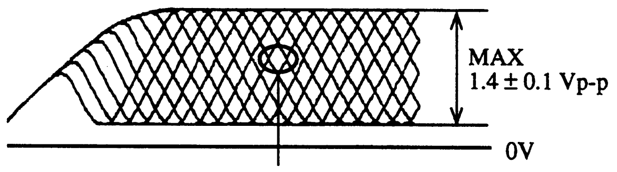


**Note:**
- Connect a probe (10: 1) of the oscilloscope or the frequency counter to a test point.
- During adjustment, connect (⊖) pin of an oscilloscope to TP2 (VREF).

1. Focus Bias Adjustment
Make the focus bias adjustment when replacing and repairing the optical block.



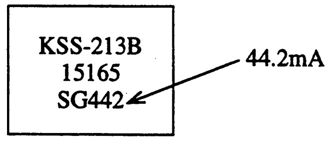
1) Connect an oscilloscope to test points TP1 (RF) and TP2 (VREF).
2) Turn on the power switch.
3) Insert test disc TCD-782 (YEDS-18) and play back the second composition.
4) Adjust SFR151 so that RF signal of test point TP1 (RF) is MAX and CLEARREST.



EYE PATTERN
must be CLEAR and MAX.

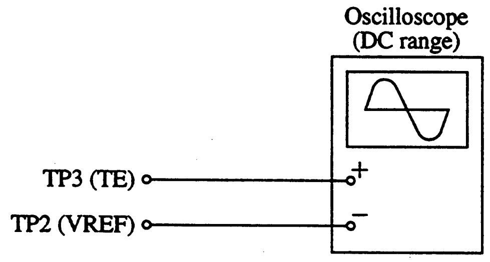
VOLT/DIV: 0.5 V
TIME/DIV: 0.5µS

**Note:** The current of the laser signal can be checked with the voltages on both sides of R167 (10Ω). The difference for the specified value shown on the lavel must be within±6.0mA.

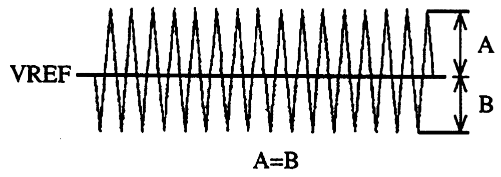


$$\text{Laser current Iop} = \frac{\text{Voltage across R167}}{10\Omega}$$

2. Tracking Balance Adjustment



1) Connect an oscilloscope to test points TP3 (TE) and TP2 (VREF).
2) Turn on the power switch.
3) Insert test disc TCD-782 (YEDS-18) and press the PLAY button.
4) Adjust SFR153 to reduce the tracking gain.
5) Adjust SFR152 so that the traverse waveform on an oscilloscope is vertically symmetrical as shown in the figure below.



VOLT/DIV: 20mV
TIME/DIV: 1mS

3. Tracking Gain Adjustment

A servo analyzer is necessary in order to perform this adjustment exactly. However, this gain has a margin, so even if it is slightly off, there is no problem. Therfore, do not perform this adjustment.
Focus/tracking gain determines the pick-up follow-up (vertical and horizontal) relative to mechanical noise and mechanical shock when 2-axis device operates. However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is raised, the noise increases when the 2-axis device operates.
- When gain is lowered, it is more susceptible to mechanical shock and skipping occurs more easily.
When the gain adjustment is off, the symptoms below appear.

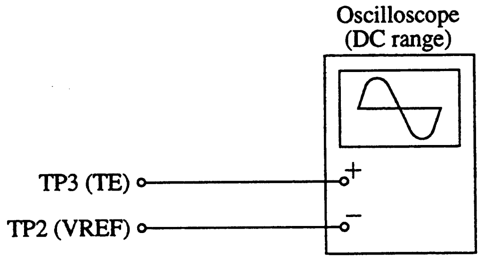
| Symptoms \ Gain | (Focus) | Tracking |
|---|---|---|
| ● The time until music starts becomes longer for STOP→ ▶PLAY or automatic selection (⏮, ⏭ buttons pressed.) (Normally takes about 2 seconds.) | low | low or high |
| ● Music does not start and disc continues to rotate for STOP→▶PLAY or automatic selection (⏮, ⏭ buttons pressed.) | —— | low |
| ● Disc stops to rotate shortly after STOP→▶PLAY. | low or high | —— |
| ● Sound is interrupted during PLAY. Or time counter display stops. | —— | low |
| ● More noises during the 2-axis device operation. | high | high |

The following is simple adjustment method.

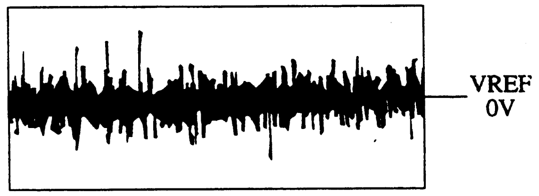
— Simple adjustment —

Note: Since the exact adjustment cannot be performed, remember the positions of the controls before the performing the adjustment. If the positions after the simple adjustment are only a little different, return the controls to the original position.

Procedure:



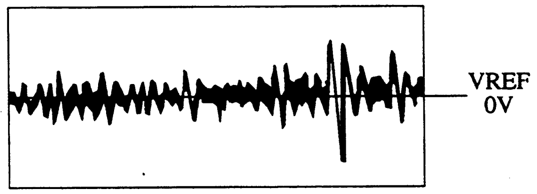
1) Keep the set horizontal. (If the set is not kept horizontally, this adjustment cannot be performed due to the gravity against the 2-axis device.)
2) Insert test disc TCD-782 (YEDS-18) and play back the second composition.
3) Connect an oscilloscope to TP3 (TE), TP2 (VREF) of the CD C.B.
4) Adjust SFR153 so that the waveform appears as shown in the figure below. (tracking gain adjustment)



VOLT/DIV: 50mV
TIME/DIV: 1mS

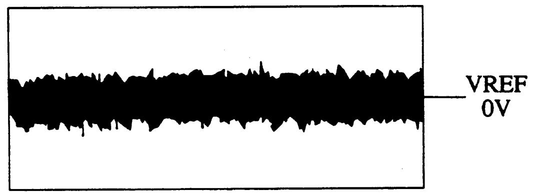
- ● Incorrect example

. Low tracking gain
(The fundamental wave appears as compared with the waveform adjusted.)



VOLT/DIV: 50mV
TIME/DIV: 1mS

High tracking gain
(The frequency of the fundamental wave is higher than that in low gain.)



VOLT/DIV: 50mV
TIME/DIV: 1mS

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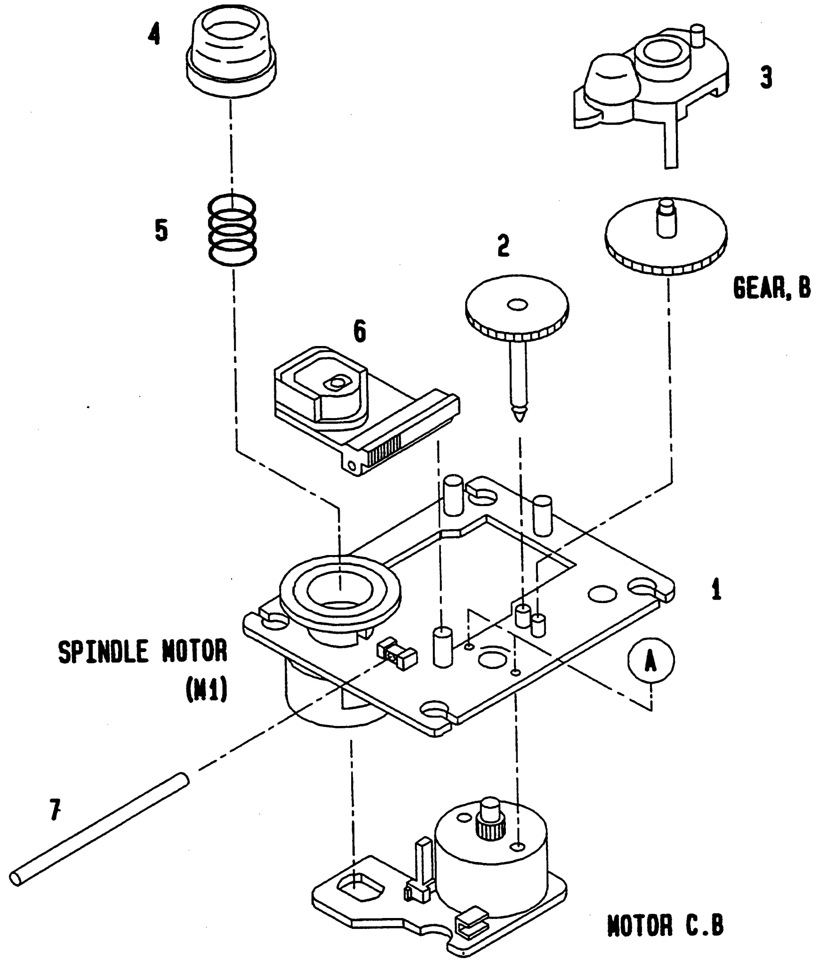
## CD MECHANISM EXPLODED VIEW 1 ／ 1 (KSM-2131BAM <A, B>)



## CD MECHANISM PARTS LIST 1 ／ 1 (KSM-2131BAM <A, B>)

DESCRIPTIONで判断できない物は “REFERENCE NAME LIST” を参照してください。
If can’t understand for Description please kindly refer to “REFERENCE NAME LIST”.

| REF. NO | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| 1 | - - - | | MOTOR CHASSIS ASSY |
| 2 | 92-625-188-020 | | GEAR(A) |
| 3 | 92-625-544-010 | | COVER |
| 4 | 92-625-186-020 | | RING CENTER C |
| 5 | 92-625-191-010 | | SPRING COMPRESSION |
| 6 | 87-070-445-010 | | OPTICAL PICK UP KSS-213B |
| 7 | 94-917-565-010 | | SHAFT SLED |
| A | 87-261-032-210 | | V+2-3 |

# 4ZG-1B

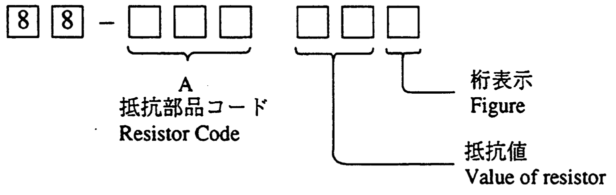
## ELECTRICAL MAIN PARTS LIST

DESCRIPTION で判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

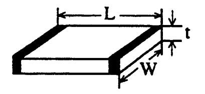
| REF. NO. | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| IC | | | |
| | 87-070-336-019 | | IC,TC 9284 BF |
| | 87-002-407-019 | | IC TA8191F |
| | 87-017-888-089 | | IC,NJM4558MD |
| | 87-070-305-019 | | IC,BA6897S |
| | 87-001-982-019 | | IC,TA7291S |
| | 87-017-802-010 | | IC,LC7872E<G> |
| | 87-017-803-010 | | IC,LC32464P-80<G> |
| TRANSISTOR | | | |
| | 87-026-297-089 | | C-TR,DTA144TK |
| | 89-110-373-089 | | C-TR,2SA1037 S |
| | 89-420-052-089 | | TR 2SD2005Q (T105) |
| | 89-421-722-389 | | TR,2SD2172 V/W |
| | 89-320-011-089 | | TR,2SC2001K |
| | 87-026-223-089 | | C-TR,DTC143TK |
| | 89-113-187-089 | | TR,2SA1318TU |
| | 87-026-608-089 | | C-TR,DTC 123 JK |
| | 89-406-555-089 | | TR,2SD655E<G> |
| | 87-026-239-089 | | C-TR,DTC114TK<G> |
| | 89-327-125-089 | | C-TR,2SC2712GR<D> |
| DIODE | | | |
| | 87-020-465-089 | | DIODE,1SS133 |
| 3CD C.B | | | |
| C101 | 87-015-819-089 | | CHIP CAP 0.01 |
| C102 | 87-015-819-089 | | CHIP CAP 0.01 |
| C103 | 87-015-676-089 | | CAP,E 47-6.3 7L |
| C104 | 87-015-676-089 | | CAP,E 47-6.3 7L |
| C106 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C107 | 87-010-404-089 | | CAP,E 4.7-50 SME |
| C108 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C109 | 87-010-248-049 | | CAP,E 220-10 SME |
| C110 | 87-010-263-049 | | CAP,E 100-10 |
| C111 | 87-010-309-089 | | C-CAP,1000P-50 CH |
| C112 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C113 | 87-010-184-089 | | C-CAP,S 3300P-50 B |
| C114 | 87-010-060-049 | | CAP,E 100-16 7L |
| C115 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C116 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C117 | 87-010-322-089 | | C-CAP,S 100P-50 CH |
| C120 | 87-010-314-089 | | C-CAP,S 22P-50 CH |
| C121 | 87-010-314-089 | | C-CAP,S 22P-50 CH |
| C123 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C124 | 87-010-184-089 | | C-CAP,S 3300P-50 B |
| C125 | 87-010-805-089 | | C-CAP,S 1-16F |
| C126 | 87-018-134-089 | | CAP,TC-U 0.01-16 Y<EXCEPT G> |
| C127 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C152 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C153 | 87-010-154-089 | | C-CAP,S 10P-50 CH |
| C154 | 87-010-322-089 | | C-CAP,S 100P-50 CH |
| C155 | 87-010-263-089 | | CAP,E 100-10 SME 5X11 |
| C156 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C157 | 87-012-141-089 | | C-CAP,S 0.22-16 F |
| C158 | 87-010-545-049 | | CAP E 0.22-50 SME |
| C159 | 87-015-683-080 | | CAP,E 33-16 7L |
| C160 | 87-010-193-089 | | C-CAP,S 0.033-25 F |
| C161 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C162 | 87-010-248-089 | | CAP,E 220-10 SME |
| C163 | 87-010-260-089 | | CAP,E 47-25 SME |
| C164 | 87-010-403-089 | | CAP,E 3.3-50 SME |
| C165 | 87-010-213-089 | | C-CAP,S 0.015-25 B |
| C166 | 87-010-187-089 | | C-CAP,S 5600P-50 B |
| C167 | 87-012-365-089 | | C-CAP,S 0.027-25V BK |
| C168 | 87-010-189-089 | | C-CAP,S 8200P-50 B |
| C169 | 87-015-883-089 | | C-CAP 0.022-25BK |
| C170 | 87-010-320-089 | | C-CAP,S 68P-50 CH |
| C171 | 87-010-382-089 | | CAP,E 22-25 SME |
| C172 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C173 | 87-010-263-089 | | CAP,E 100-10 SME 5X11 |
| C174 | 87-010-178-089 | | C-CAP,S 1000P-50 B |
| C175 | 87-010-805-089 | | C-CAP,S 1-16F |
| C201 | 87-010-318-089 | | C-CAP,S 47P-50 CH |
| C202 | 87-010-318-089 | | C-CAP,S 47P-50 CH |
| C203 | 87-010-321-089 | | C-CAP,S 82P-50 CH |
| C204 | 87-010-321-089 | | C-CAP,S 82P-50 CH |
| C205 | 87-010-321-089 | | C-CAP,S 82P-50 CH |
| C206 | 87-010-321-089 | | C-CAP,S 82P-50 CH |
| C207 | 87-012-153-089 | | C-CAP,S 120P-50 CH |
| C208 | 87-012-153-089 | | C-CAP,S 120P-50 CH |
| C209 | 87-012-153-089 | | C-CAP,S 120P-50 CH |
| C210 | 87-012-153-089 | | C-CAP,S 120P-50 CH |
| C211 | 87-010-405-049 | | CAP,E 10-50 SME |
| C212 | 87-010-405-049 | | CAP,E 10-50 SME |
| C213 | 87-010-186-089 | | C-CAP,S 4700P-50 B |
| C214 | 87-010-186-089 | | C-CAP,S 4700P-50 B |
| C231 | 87-010-112-089 | | CAP,E 100-16 |
| C232 | 87-010-060-049 | | CAP,E 100-16 7L |
| C301 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C302 | 87-010-260-089 | | CAP,E 47-25 SME |
| C501 | 87-010-221-049 | | CAP,E 470-10 SME |
| C502 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C503 | 87-010-263-089 | | CAP,E 100-10 SME 5X11 |
| C504 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C505 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C506 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C507 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C508 | 87-010-221-049 | | CAP,E 470-10 SME |
| C509 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C510 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C601 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C602 | 87-010-381-089 | | CAP,E 330-16 SME |
| C603 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C701 | 87-010-322-089 | | C-CAP,S 100P-50 CH |
| C702 | 87-010-322-089 | | C-CAP,S 100P-50 CH |
| C703 | 87-010-318-089 | | C-CAP,S 47P-50 CH |
| C704 | 87-010-178-089 | | C-CAP,S 1000P-50 B |
| C705 | 87-010-178-089 | | C-CAP,S 1000P-50 B |
| C712 | 87-010-982-049 | | CAP,E 33-25 GAS |
| C801 | 87-010-197-089 | | C-CAP,S 0.01-25 B<G> |
| C802 | 87-010-260-089 | | CAP,E 47-25 SME<G> |
| C803 | 87-010-194-089 | | C-CAP,S 0.047-25 F<G> |
| C804 | 87-010-260-089 | | CAP,E 47-25 SME<G> |
| C805 | 87-018-134-089 | | CAP,TC-U 0.01-16 Y<G> |
| C806 | 87-010-260-089 | | CAP,E 47-25 SME<G> |
| C807 | 87-010-405-089 | | CAP,E 10-50 SME<G> |
| C808 | 87-010-197-089 | | C-CAP,S 0.01-25 B<G> |
| C809 | 87-010-405-049 | | CAP,E 10-50 SME<G> |
| C810 | 87-010-313-089 | | C-CAP,S 18P-50 CH<G> |
| C811 | 87-010-314-089 | | C-CAP,S 22P-50 CH<G> |
| C812 | 87-010-313-089 | | C-CAP,S 18P-50 CH<G> |
| C813 | 87-010-315-089 | | C-CAP,S 27P-50 CH<G> |
| C814 | 87-010-197-089 | | C-CAP,S 0.01-25 B<G> |
| C815 | 87-010-260-049 | | CAP,E 47-25 SME<G> |
| C816 | 87-010-404-089 | | CAP,E 4.7-50 SME<G> |
| C817 | 87-010-221-089 | | CAP,E 470-10<G> |
| C818 | 87-010-196-089 | | C-CAP,S 0.1-25 F<G> |
| C819 | 87-010-321-089 | | C-CAP,S 82P-50 CH<G> |
| C820 | 87-010-178-089 | | C-CAP,S 1000P-50 B<G> |
| C821 | 87-010-196-089 | | C-CAP,S 0.1-25 F<G> |
| C822 | 87-010-403-089 | | CAP,E 3.3-50 SME<G> |
| C824 | 87-018-134-089 | | CAP,TC-U 0.01-16 Y |
| C901 | 87-010-260-089 | | CAP,E 47-25 SME<D> |
| C902 | 87-010-196-089 | | C-CAP,S 0.1-25 F<D> |
| CON2 | 84-ZG1-616-019 | | CONN ASSY,6P H |
| EMI801 | 87-008-474-089 | | F-BEAD,EMI BL02RN1<G> |
| EMI802 | 87-008-474-089 | | F-BEAD,EMI BL02RN1<G> |
| FC1 | 85-NFT-611-119 | | FF-CABLE,16P-1.0 |
| FC4 | 84-ZG1-614-219 | | CABLE,FFC 5P-1.25 |
| J801 | 87-009-502-010 | | JACK,PIN 1PY EARTH<G> |
| LED901 | 87-A40-123-019 | | LED,SLZ-8128A-01-B<D> |
| M601 | 87-045-305-019 | | MOTOR, RF-500TB |
| R184 | 87-022-361-089 | | C-RES,S 47K-1/10W F |
| R185 | 87-022-361-089 | | C-RES,S 47K-1/10W F |
| R186 | 87-022-361-089 | | C-RES,S 47K-1/10W F |
| R187 | 87-022-361-089 | | C-RES,S 47K-1/10W F |
| R188 | 87-022-361-089 | | C-RES,S 47K-1/10W F |
| R189 | 87-022-361-089 | | C-RES,S 47K-1/10W F |
| R401 | 87-022-186-089 | | C-RES,82-1/4W J |
| R403 | 87-022-186-089 | | C-RES,82-1/4W J |
| SFR151 | 87-024-176-089 | | SFR,100K DIA6 V |
| SFR152 | 87-024-171-089 | | SFR 4.7K DIA6 V |
| SW701 | 87-036-109-019 | | SW,PUSH SPPB 61 |
| SW702 | 87-036-109-019 | | SW,PUSH SPPB 61 |
| X101 | 87-030-402-089 | | VIB,XTAL 16.9344 MHZ |
| X801 | 80-JUC-602-089 | | VIB,XTAL 17.73MHZ<G> |
| X802 | 80-JUC-601-089 | | VIB,XTAL 14.31MHZ<G> |
| LED C.B | | | |
| LED701 | 87-070-200-089 | | LED,SLP636C-81-S-T1 |
| LED702 | 87-017-350-080 | | LED,SEL1550CM |
| LED703 | 87-017-350-080 | | LED,SEL1550CM |
| LED704 | 87-070-200-089 | | LED,SLP636C-81-S-T1 |
| T-T C.B | | | |
| C401 | 87-018-214-089 | | CAP TC U 0.1-50 F |
| M401 | 87-045-364-019 | | MOTOR,(BCH3B14) |
| PS401 | 87-026-573-019 | | P-SNSR,GP1S53V |
| MOTOR C.B | | | |
| M2 | 9X-262-513-210 | | SLED MOTOR ASSY |
| PIN3 | 91-564-722-110 | | CONNECTOR 6P |
| SW1 | 91-572-085-110 | | LEAF SW |

○ チップ抵抗部品コード／CHIP RESISTOR PART CODE

チップ抵抗部品コードの成り立ち
Chip Resistor Part Coding



チップ抵抗
Chip resistor

| 容量 Wattage | 種類 Type | 許容誤差 Tolerance | 記号 Symbol | 寸法／Dimensions (mm) | | | | 抵抗コード :A Resistor Code: A |
|---|---|---|---|---|---|---|---|---|
| | | | | 外形／Form | L | W | t | |
| 1／16W | 1608 | ±5% | CJ |  | 1.6 | 0.8 | 0.45 | 108 |
| 1／10W | 2125 | ±5% | CJ | | 2 | 1.25 | 0.45 | 118 |
| 1／8W | 3216 | ±5% | CJ | | 3.2 | 1.6 | 0.55 | 128 |

Refer to the following pages for the 4ZG-1 and the common sections.

### ■ IC DESCRIPTION

LC7872E ........................................................................ See page 62

### ■ MECHANICAL EXPLODED VIEW 1／1

See page 95

### ■ MECHANICAL PARTS LIST 1／1

See page 96

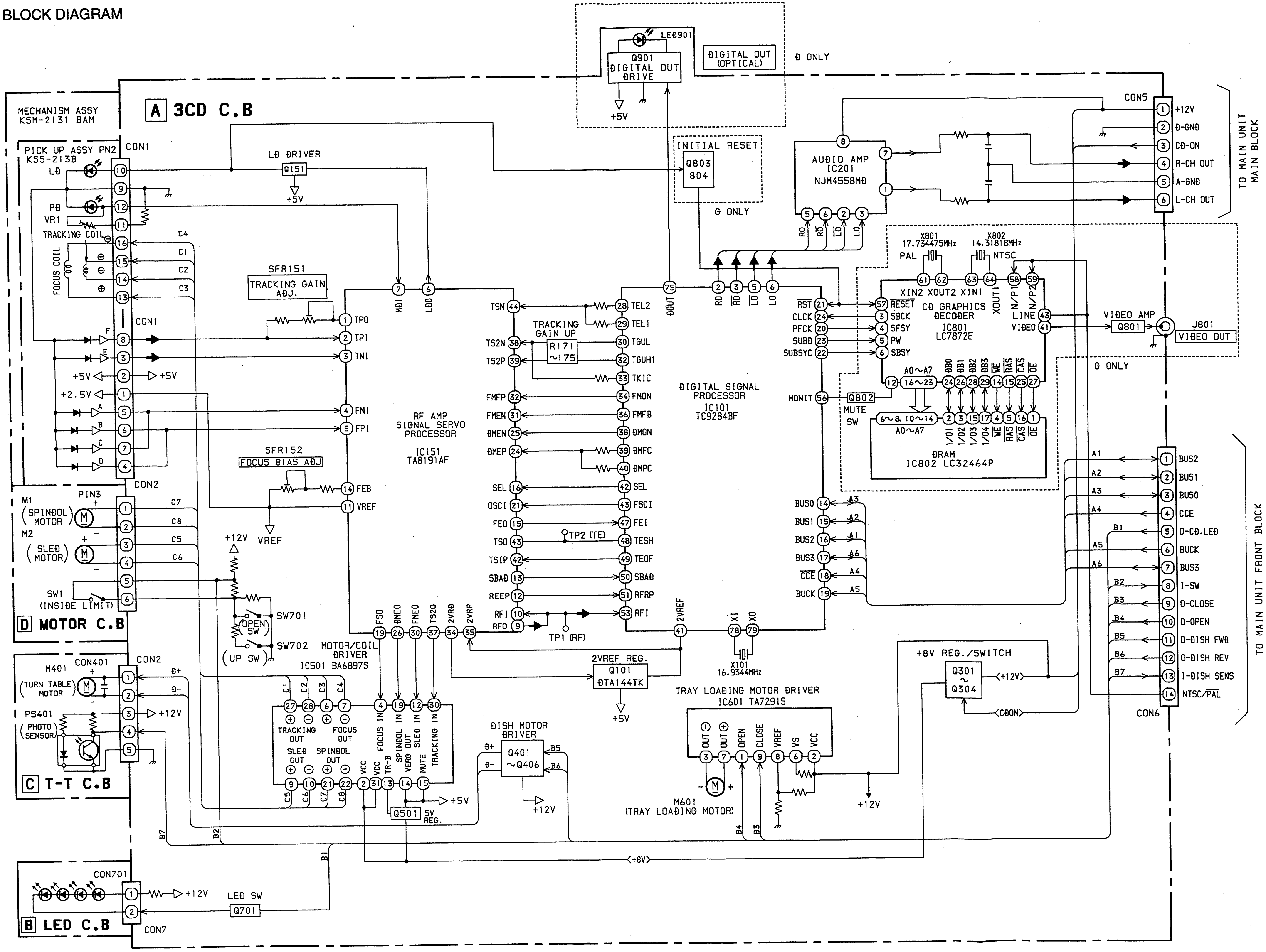
### ■ CD MECHANISM EXPLODED VIEW 1／1

See page 114

### ■ CD MECHANISM PARTS LIST 1／1

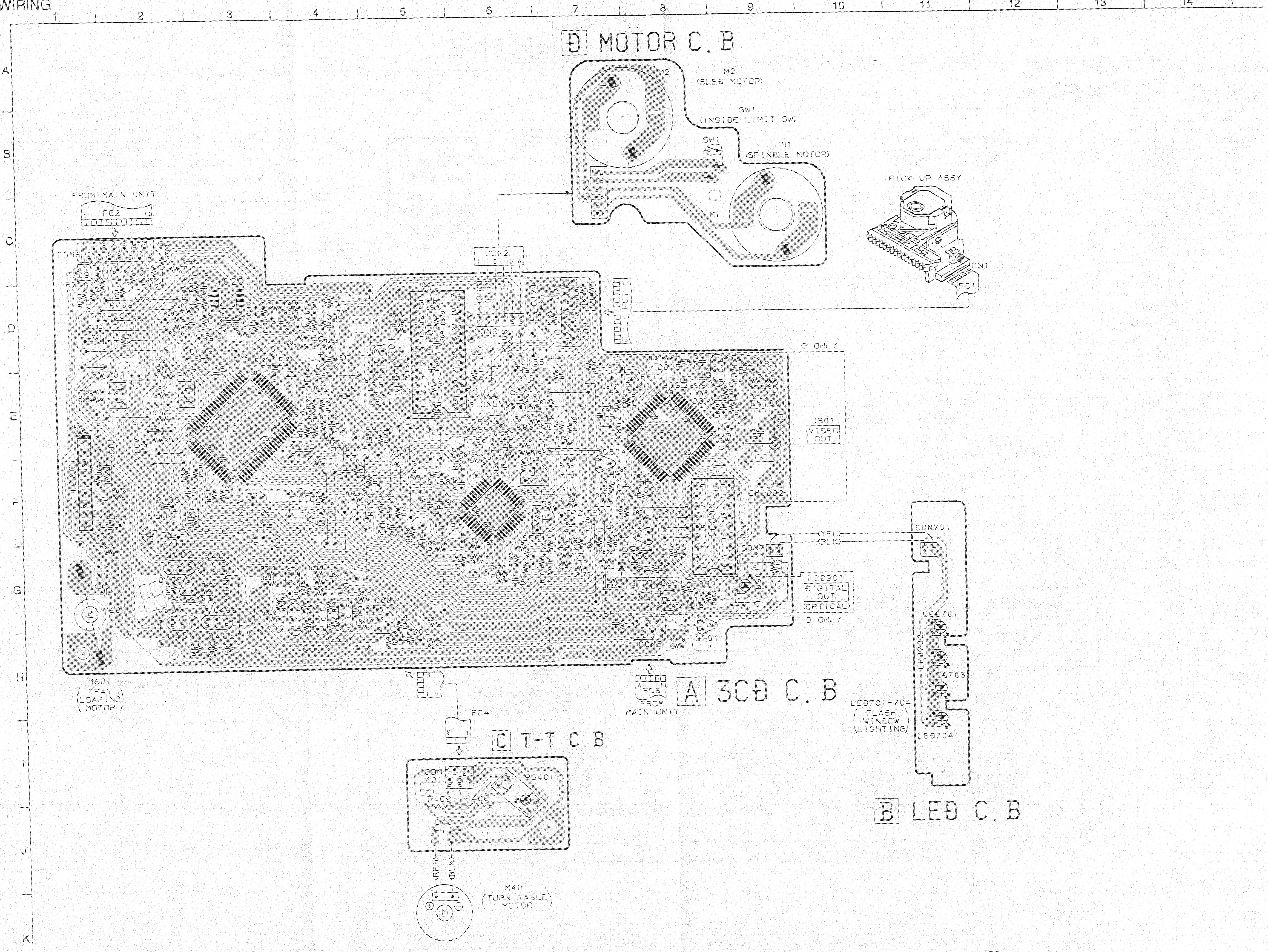
See page 114

# BLOCK DIAGRAM



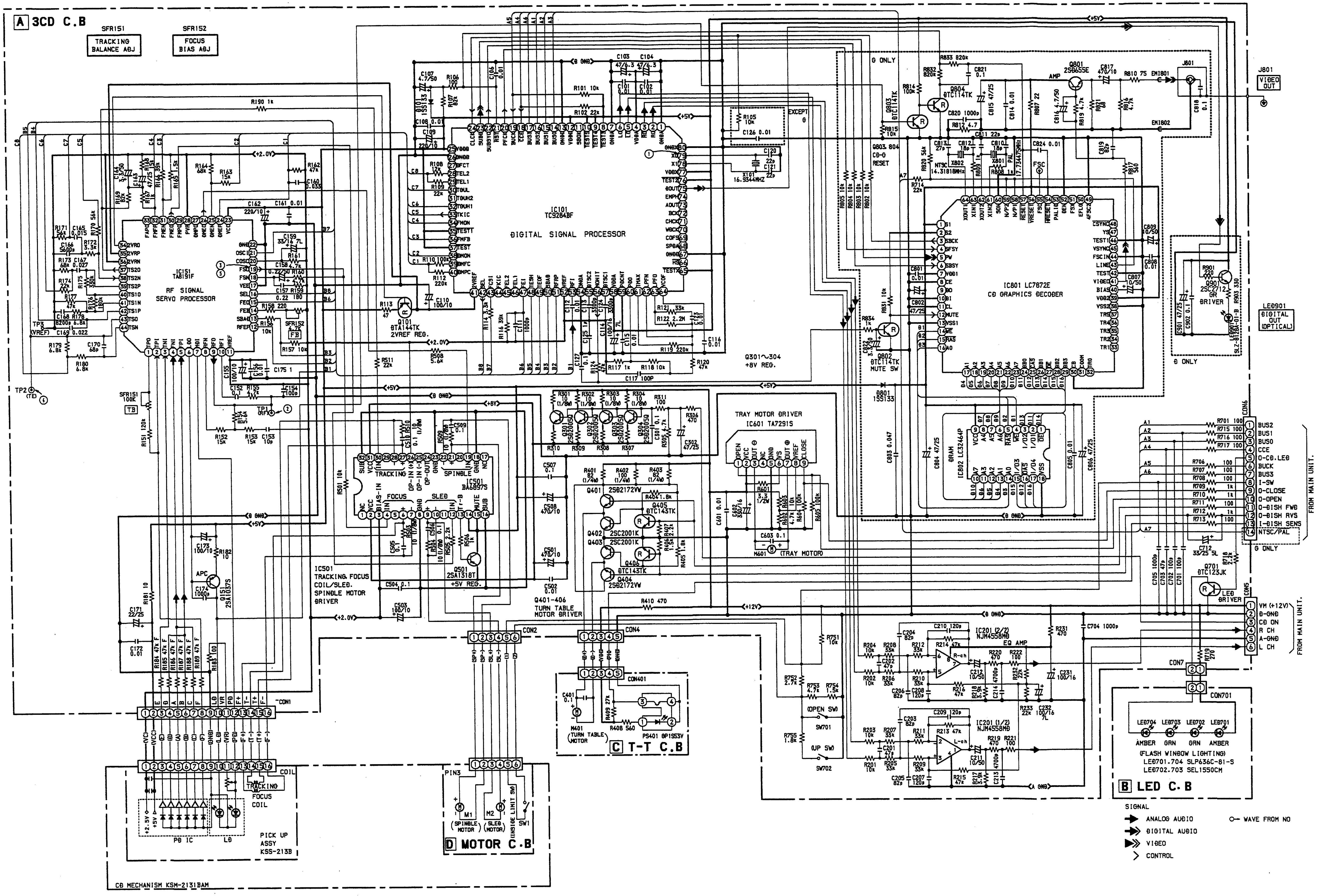
A 3CD C.B
MECHANISM ASSY KSM-2131 BAM
PICK UP ASSY PN2 KSS-213B
LD
PD
VR1
TRACKING COIL
FOCUS COIL
CON1
LD DRIVER
Q151
+5V
SFR151
TRACKING GAIN ADJ.
SFR152
FOCUS BIAS ADJ
VREF
RF AMP
SIGNAL SERVO PROCESSOR
IC151
TA8191AF
TPO
TPI
TNI
FNI
FPI
FEB
MDI
LDO
+5V
+2.5V
C1
C2
C3
C4
C5
C6
C7
C8
D MOTOR C.B
M1 SPINDOL MOTOR
M2 SLED MOTOR
PIN3
CON2
SW1 (INSIDE LIMIT)
+12V
SW701
OPEN SW
SW702
UP SW
MOTOR/COIL DRIVER
IC501 BA6897S
TRACKING OUT
FOCUS OUT
SLED OUT
SPINDOL OUT
FOCUS IN
VCC
TR-B
SPINDOL IN
VERO OUT
SLED IN
MUTE
TRACKING IN
Q501
5V REG.
C T-T C.B
M401 TURN TABLE MOTOR
CON401
PS401 PHOTO SENSOR
D+
D-
B LED C.B
CON701
CON7
LED SW
Q701
LED901
Q901
DIGITAL OUT DRIVE
DIGITAL OUT (OPTICAL)
D ONLY
INITIAL RESET
Q803
804
G ONLY
DIGITAL SIGNAL PROCESSOR
IC101
TC9284BF
TRACKING GAIN UP
R171 ~175
TP2 (TE)
TP1 (RF)
TSN
TS2N
TS2P
FMFP
FMEN
DMEN
DMEP
SEL
OSCI
FEO
TSO
TSIP
SBAD
REEP
RFI
RFO
TEL2
TEL1
TGUL
TGUH1
TKIC
FMON
FMFB
DMON
DMFC
DMPC
FSCI
FEI
TESH
TEOF
RFRP
DOUT
RO
LO
2VREF
X1
XO
X101 16.9344MHz
2VREF REG.
Q101
DTA144TK
FSO
DMEO
FMEO
TS2O
2VRD
2VRP
RST
CLCK
PFCK
SUBD
SUBSYC
MONIT
Q802
MUTE SW
BUS0
BUS1
BUS2
BUS3
CCE
BUCK
AUDIO AMP
IC201
NJM4558MD
CON5
+12V
D-GND
CD-ON
R-CH OUT
A-GND
L-CH OUT
TO MAIN UNIT MAIN BLOCK
X801 17.734475MHz
X802 14.31818MHz
PAL
NTSC
XIN2 XOUT2 XIN1
XOUT1
N/P1
N/P2
CD GRAPHICS DECODER
IC801
LC7872E
RESET
SBCK
SFSY
PW
SBSY
LINE
VIDEO
A0~A7
DB0
DB1
DB2
DB3
WE
RAS
CAS
OE
I/O1
I/O2
I/O3
I/O4
DRAM
IC802 LC32464P
VIDEO AMP
Q801
J801
VIDEO OUT
G ONLY
CON6
BUS2
BUS1
BUS0
CCE
O-CD.LED
BUCK
BUS3
I-SW
O-CLOSE
O-OPEN
O-DISH FWD
O-DISH REV
I-DISH SENS
NTSC/PAL
A1
A2
A3
A4
A5
A6
B1
B2
B3
B4
B5
B6
B7
TO MAIN UNIT FRONT BLOCK
+8V REG./SWITCH
Q301 ~ Q304
(+12V)
(CDON)
(+8V)
DISH MOTOR DRIVER
Q401 ~Q406
TRAY LOADING MOTOR DRIVER
IC601 TA7291S
OUT ⊖
OUT ⊕
OPEN
CLOSE
VREF
VS
VCC
M601 (TRAY LOADING MOTOR)

## WIRING



D MOTOR C.B
M2 (SLED MOTOR)
SW1 (INSIDE LIMIT SW)
M1 (SPINDLE MOTOR)
PIN3
PICK UP ASSY
CN1
FC1
FROM MAIN UNIT
FC2
CON6
CON2
IC201
IC101
IC601
IC801
IC802
SW701
SW702
X101
X801
J801 VIDEO OUT
G ONLY
EXCEPT G
D ONLY
CON701
(YEL)
(BLK)
LED901 DIGITAL OUT (OPTICAL)
LED701
LED702
LED703
LED704
LED701-704 (FLASH WINDOW LIGHTING)
B LED C.B
M601 (TRAY LOADING MOTOR)
FC3 FROM MAIN UNIT
A 3CD C.B
CON5
CON4
FC4
C T-T C.B
CON 401
PS401
R409
R408
C401
(RED)
(BLK)
M401 (TURN TABLE MOTOR)
A
B
C
D
E
F
G
H
I
J
K
1
2
3
4
5
6
7
8
9
10
11
12
13
14

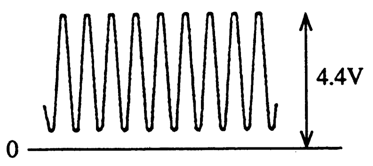
# SCHEMATIC DIAGRAM



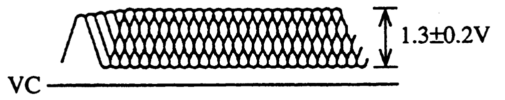
A 3CD C.B
SFR151 TRACKING BALANCE ADJ
SFR152 FOCUS BIAS ADJ
IC151 TA8191F RF SIGNAL SERVO PROCESSOR
IC101 TC9284BF DIGITAL SIGNAL PROCESSOR
IC801 LC7872E CD GRAPHICS DECODER
IC802 LC3246AP DRAM
IC501 BA6897S
IC501 TRACKING, FOCUS COIL/SLED, SPINDLE MOTOR DRIVER
Q101 DTA144TK 2VREF REG.
Q501 2SA1318T +5V REG.
Q301~304 +8V REG.
Q401-406 TURN TABLE MOTOR DRIVER
TRAY MOTOR DRIVER IC601 TA7291S
M601 (TRAY MOTOR)
Q801 2SB655E AMP
Q802 DTC114TK MUTE SW
Q803, 804 CD-G RESET
Q901 2SC2712 GR DRIVER
Q701 DTC123JK LED DRIVER
X101 16.9344MHz
X802 NTSC 14.31818MHz
X801 PAL 17.734475MHz
G ONLY
EXCEPT G
J801 VIDEO OUT
LED901 DIGITAL OUT (OPTICAL)
IC201 (2/2) NJM4558MD EQ AMP
IC201 (1/2) NJM4558MD
CON6 FROM MAIN UNIT
BUS2
BUS1
BUSO
CCE
D-CD.LED
BUCK
BUS3
I-SW
D-CLOSE
D-OPEN
D-DISH FWD
D-DISH RVS
I-DISH SENS
NTSC/PAL
CON5 FROM MAIN UNIT
VM (+12V)
D-GND
CD ON
R CH
A-GND
L CH
CON7
CON701
LED704 LED703 LED702 LED701
AMBER GRN GRN AMBER
(FLASH WINDOW LIGHTING)
LED701.704 SLP636C-81-S
LED702.703 SEL1550CM
B LED C.B
CON401
M401 (TURN TABLE MOTOR)
PS401 DP1553V
OPEN SW SW701
UP SW SW702
C T-T C.B
CON1
CON2
CON4
PIN3
PICK UP ASSY KSS-213B
TRACKING FOCUS COIL
PD IC
LD
M1 (SPINDLE MOTOR)
M2 (SLED MOTOR)
SW1 (INSIDE LIMIT SW)
D MOTOR C.B
CD MECHANISM KSM-2131BAM
SIGNAL
ANALOG AUDIO
DIGITAL AUDIO
VIDEO
CONTROL
WAVE FROM NO

## WAVE FORM

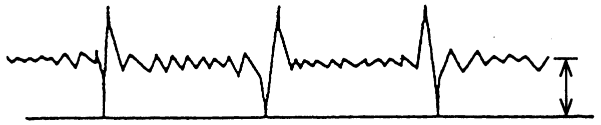
① SYSTEM CLOCK VOLT/DIV: 2V
IC101 Pin (79) (XO) TIME/DIV: 0.1µS
f=16.9344MHz



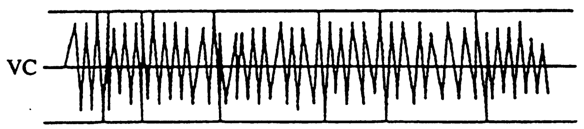
② RF VOLT/DIV: 500mV
TP1 (RF) TIME/DIV: 0.5µS



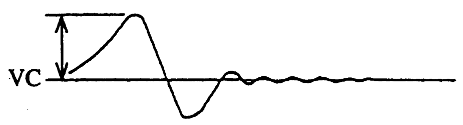
③ Focus VOLT/DIV: 200mV
IC151 Pin ⑲ (FSO) TIME/DIV: 2mS



④ Tracking TIME/DIV: 1mS
TP2 (TE)

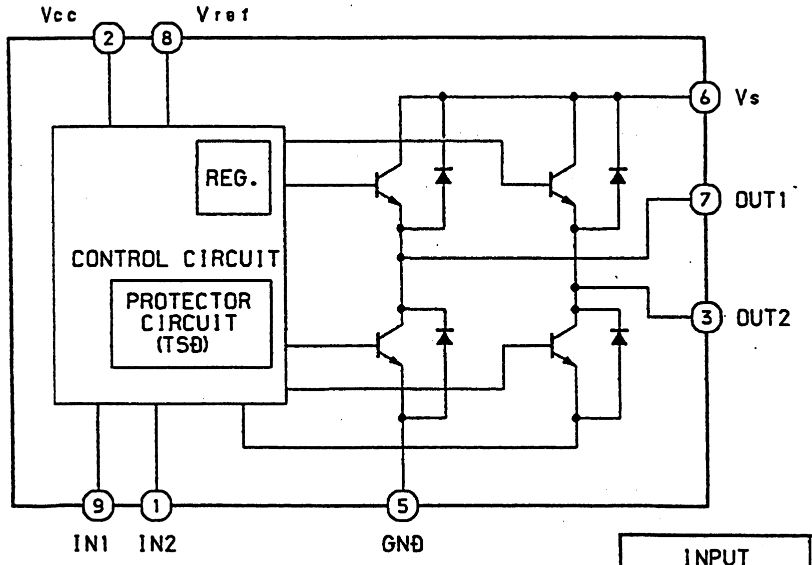


⑤ Focus Search
IC151 Pin ⑲ (FSO)



## IC BLOCK DIAGRAM

## IC, TA7291



| INPUT | | OUTPUT | | MODE |
|---|---|---|---|---|
| IN1 | IN2 | OUT1 | OUT2 | |
| 0 | 0 | ∞ | ∞ | STOP |
| 1 | 0 | H | L | CW |
| 0 | 1 | L | H | CCW |
| 1 | 1 | L | L | BRAKE |

∞ : HI IMPEDANCE
NOTE : INPUT "H" ACTIVE

## IC DESCRIPTION

## IC, TC9284BF

| Pin No. | Pin name | I/O | Description |
|---|---|---|---|
| 1 | GNDA | — | D/A converter R-channel analog GND. |
| 2 | RO | O | R-channel data positive output. |
| 3 | $\overline{\text{RO}}$ | O | R-channel data inverted output. |
| 4 | VDA | — | D/A converter power supply. |
| 5 | $\overline{\text{LO}}$ | O | L-channel data inverted output. |
| 6 | LO | O | L-channel data positive output. |
| 7 | GNDA | — | D/A converter L-channel analog GND. |
| 8~10 | $\overline{\text{TEST3}}$~$\overline{\text{TEST5}}$ | I | TEST pin. Normally "H" or open. |
| 11 | SBOK | O | Sub code Q data CRCC judgment result output. Judgment result OK: H |
| 12 | VDDD | — | Digital power supply. (+5 V) |
| 13 | GNDD | — | Digital GND. |
| 14~17 | BUS0~BUS3 | I/O | µprocessor interface, data input/output. |
| 18 | CCE | I | µprocessor interface, chip enable signal input. When "L" : BUS 3~0 are active |
| 19 | BUCK | I | µprocessor interface, clock input. |
| 20 | PFCK | O | PB frame sync output. |
| 21 | $\overline{\text{RST}}$ | I | Reset signal input. "L" at reset. |
| 22 | SUBSYC | O | Sub code block sync output. When sub code is detected,"H" at S1 position. |
| 23 | SUBD | O | Sub code P~W output. |
| 24 | CLCK | I | Sub code P~W data read clock input. |
| 25 | VDDD | — | Digital power supply. (+5 V) |
| 26 | GNDD | — | Digital GND. |
| 27 | DFCT | O | Defect detection signal output. When defect is detected: "VREF", normally "HiZ". |
| 28 | TEL2 | O | Tracking gain adjustment analog switch output. "VREF" , or "HiZ". |
| 29 | TEL1 | O | Tracking gain adjustment analog switch output. "VREF" , or "HiZ". |
| 30 | TGUL | O | Analog switch output for tracking servo gain up. Polarity in gain-up mode and normal mode can be selected by command. |
| 31 | TGUH2 | O | Analog switch output for tracking servo gain up. "HiZ" for gain-up, normally "VREF". |
| 32 | TUGH1 | O | TGUH1 during normal playback. TGUH2: not used |
| 33 | TKIC | O | Tracking actuator kick signal output. NKICx and CKICx are used for kick during tracking gain adjustment. "VREF" for outermost track."O" for moving toward inner track. Normally "HiZ". |
| 34 | FMON | O | Analog switch output to turn ON/OFF the feed servo. "HiZ" to turn ON servo. "VREF" to turn OFF servo. |
| 35 | $\overline{\text{TEST1}}$ | I | TEST pin. Normally "H" or open. |
| 36 | FMFB | O | Feed motor FWD/BWD direction control signal output."2VREF" for outmost track. "O" for moving toward inner track. Normally "HiZ". |
| 37 | $\overline{\text{TEST}}$ | I | TEST pin. Normally "H" or open. |
| 38 | DMON | O | Analog switch output to select gain of the disc motor drive circuit. "HiZ" for CLV servo OFF, "HiZ" or "VREF" can be selected by command. |

<table>
<tr><th>Pin No.</th><th>Pin name</th><th>I/O</th><th>Description</th></tr>
<tr><td>39</td><td>DMPC</td><td>O</td><td>Disc motor CLV servo AFC signal output.
<table>
<tr><th>Operation</th><th>Command</th><th>DMFC output</th></tr>
<tr><td>Motor acceleration</td><td>DMFK</td><td>“2VREF”</td></tr>
<tr><td>CLV servo ON</td><td>DMSV</td><td>AFC signal (PWM)</td></tr>
<tr><td>Motor brake</td><td>DMBK</td><td>“L”</td></tr>
<tr><td>CLV servo OFF</td><td>DMOFF</td><td>“VREF”</td></tr>
</table></td></tr>
<tr><td>40</td><td>DMPC</td><td>O</td><td>Disc motor CLV servo APC signal output.</td></tr>
<tr><td>41</td><td>2VREF</td><td>—</td><td>Analog power supply. (twice the “VREF” voltage)</td></tr>
<tr><td>42</td><td>SEL</td><td>O</td><td>Servo mode select output. It turns ON/OFF the laser diode (LD) and focus servo.
<table>
<tr><th>SEL output</th><th>LD</th><th>Focus servo</th><th>Operating mode</th></tr>
<tr><td>“L”</td><td>OFF</td><td>OFF</td><td>LD OFF</td></tr>
<tr><td>“HiZ”</td><td>ON</td><td>OFF</td><td>Focus search</td></tr>
<tr><td>“H”</td><td>ON</td><td>ON</td><td>Focus ON (normal play)</td></tr>
</table></td></tr>
<tr><td>43</td><td>FCSI</td><td>O</td><td>Focus actuator drive signal output during focus search mode. “VDDA” to move the lens far from disc. “L” to move the lens closer to disc. Normally “HiZ”.</td></tr>
<tr><td>44</td><td>FKIC</td><td>O</td><td>Focus actuator drive signal output during focus adjustment mode.ÅgVDDAÅhto move the lens far from disc. “L” to move the lens closer to disc. Normally “HiZ”.</td></tr>
<tr><td>45, 46</td><td>FEL1, FEL2</td><td>O</td><td>Focus gain adjustment analog switch output. “VREF” or “HiZ”.</td></tr>
<tr><td>47</td><td>FEI</td><td>I</td><td>Focus error signal input.</td></tr>
<tr><td>48</td><td>TESH</td><td>I</td><td>Analog switch input to track error signal sample-and-hold.</td></tr>
<tr><td>49</td><td>TEOF</td><td>O</td><td>Focus gain adjustment analog switch output.“VREF” when tracking servo off.</td></tr>
<tr><td>50</td><td>SBAD</td><td>I</td><td>Sub beam added signal input.</td></tr>
<tr><td>51</td><td>RFRP</td><td>I</td><td>RF ripple signal input.</td></tr>
<tr><td>52</td><td>VREF</td><td>—</td><td>Analog power supply.</td></tr>
<tr><td>53</td><td>RFI</td><td>I</td><td>RF signal input.</td></tr>
<tr><td>54</td><td>GNDA</td><td>—</td><td>Analog GND.</td></tr>
<tr><td>55</td><td>DTSC2</td><td>O</td><td>Data slice control EFM signal inverted output.</td></tr>
<tr><td>56</td><td>MONI T</td><td>O</td><td>Internal signal monitored output. EFMO, PLCK or LOCK signals can be selected by command. Can be muted. (Not used)</td></tr>
<tr><td>57</td><td>DTSC 1</td><td>O</td><td>Data slice control EFM signal positive polarity output.</td></tr>
<tr><td>58</td><td>VDDA</td><td>—</td><td>Analog power supply.</td></tr>
<tr><td>59</td><td>PDCNT</td><td>I</td><td>PDO output control signal input. “L” to fix to “HiZ” forcibly. “H” : normal output.</td></tr>
<tr><td>60</td><td>PDO</td><td>O</td><td>Phase error signal between EFM and PLCK signals is output.</td></tr>
<tr><td>61</td><td>TMAX</td><td>O</td><td>TMAX detected result output.
<table>
<tr><th>TMAX detected result</th><th>TMAX output</th></tr>
<tr><td>Longer than specified cycle</td><td>“L”</td></tr>
<tr><td>Shorter than specified cycle</td><td>“VREF”</td></tr>
<tr><td>Within specified cycle</td><td>“HiZ”</td></tr>
</table></td></tr>
<tr><td>62</td><td>LPFN</td><td>I</td><td>Low-pass filter amplifier inverted input.</td></tr>
</table>

| Pin No. | Pin name | I/O | Description |
|---|---|---|---|
| 63 | LPFO | O | Low-pass filter amplifier output. |
| 64 | VCOF | O | VCO filter output. |
| 65 | TESTX | I | TEST pin. Normally “H” or “L” .(Connected to +5 V) |
| 66 | $\overline{\text{HS}}$ | O | Double speed mode output. “H” : normal speed. “L” : double speed |
| 67 | GNDD | — | Digital GND. |
| 68 | SPDA | O | Processor status signal output. |
| 69 | COFS | O | Correction circuit frame clock (7.35 kHz) output. |
| 70 | WDCK | O | Word clock (88.2 kHz) output. SUBQ, BUF0V or 1PF can be selected by the µprocessor command. (Not used) |
| 71 | CHCK | O | Channel clock (44.1 kHz) output. “L”for L-channel. “H” for R-channel. |
| 72 | BCK | O | Bit clock (1.4112 MHz) output. |
| 73 | AOUT | O | Audio data output. (Not used) |
| 74 | EMPH | O | Emphasis ON/OFF select signal. “H” : emphasis ON. “L” for emphasis OFF |
| 75 | DOUT | O | DIGITAL SIGNAL output. |
| 76 | $\overline{\text{TEST2}}$ | I | TEST pin. Normally “H”. |
| 77 | VDDX | — | Crystal oscillator circuit power supply. |
| 78 | XI | I | External crystal oscillator is connected. (Crystal oscillator frequency 16.9344 MHz) |
| 79 | XO | O | External crystal oscillator is connected. (Crystal oscillator frequency 16.9344 MHz) |
| 80 | GNDX | — | Crystal oscillator GND. |

## IC, TA8191F

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1 | TPO | O | Sub beam I-V amplifier (TA Amp) output terminal. |
| 2 | TPI | I | Sub beam I-V amplifier (TA Amp) input terminal. |
| 3 | TNI | I | Sub beam I-V amplifier (TA Amp) input terminal. |
| 4 | FNI | I | Main beam I-V amplifier (FN Amp) input terminal. |
| 5 | FPI | I | Main beam I-V amplifier (FP Amp) input terminal. |
| 6 | LDO | O | Laser diode amplifier (LD Amp) output terminal. |
| 7 | MDI | I | Monitor photo diode amplifier (MD Amp) input terminal. |
| 8 | RFN | I | RF amplifier reversed phase input terminal. |
| 9 | RFO | O | RF amplifier output terminal. |
| 10 | RFI | I | RF ripple signal generator circuit input terminal. |
| 11 | VREF | O | Reference voltage output terminal (+2.1 V). |
| 12 | RFRP | O | RF ripple signal output terminal. |
| 13 | SBAD | O | Scar detection signal output terminal. |
| 14 | FEB | I | Focus error balance adjustment input terminal. |
| 15 | FEO | O | Focus error amplifier (FE Amp) output terminal. |
| 16 | SEL | I | Analog switch control signal input terminal. |
| 17 | VEE | — | Power supply terminal. (TA8190F; -5 V, TA8191F; GND) |
| 18 | FSN | I | Focus output amplifier (FS Amp) reversed phase input terminal. |
| 19 | FSO | O | Focus output amplifier (FS Amp) output terminal. |
| 20 | COSC | O | External capacitor to generate focus search signal is connected to this terminal. |
| 21 | OSCI | I | External input to control the built-in power supply to generate focus search signal is connected to this terminal. |
| 22 | GND | — | GND. |
| 23 | VCC | I | Power supply terminal (+5 V). |
| 24 | DMEP | I | Disc motor amplifier (DM Amp) positive phase input terminal. |
| 25 | DMEN | I | Disc motor amplifier (DM Amp) reversed phase input terminal. |
| 26 | DMEO | O | Disc motor amplifier (DM Amp) output terminal. |
| 27 | DMPO | O | Disc motor drive amplifier (DMP Amp) output terminal. (Not used). |
| 28 | PVR | I | Drive amplifier reference voltage input terminal. |
| 29 | FMPO | O | Feed motor drive amplifier (FMP Amp) output terminal. (Not used). |
| 30 | FMEO | O | Feed motor amplifier (FM Amp) output terminal. |
| 31 | FMEN | I | Feed motor amplifier (FM Amp) reversed phase input terminal. |
| 32 | FMEP | O | Feed motor amplifier (FM Amp) positive phase input terminal. |
| 33 | FAPO | O | Focus actuator drive amplifier (FAP Amp) output terminal. (Not used). |
| 34 | 2VRO | I | 2 V REF amplifier (2 V REF Amp) output terminal. |
| 35 | 2VRP | I | 2 V REF amplifier (2 V REF Amp) positive phase input terminal. |
| 36 | 2VRN | I | 2 V REF amplifier (2 V REF Amp) reversed phase input terminal. |
| 37 | TS2O | O | Tracking servo amplifier 2 (TS2 Amp) output terminal. |
| 38 | TS2N | I | Tracking servo amplifier 2 (TS2 Amp) reversed phase input terminal. |
| 39 | TS2P | I | Tracking servo amplifier 2 (TS2 Amp) positive phase input terminal. |
| 40 | TS1O | O | Tracking servo amplifier 1 (TS1 Amp) output terminal. |
| 41 | TS1N | I | Tracking servo amplifier 1 (TS1 Amp) reversed phase input terminal. |
| 42 | TS1P | I | Tracking servo amplifier 1 (TS1 Amp) positive phase input terminal. |
| 43 | TSO | O | Tracking output amplifier (TS Amp) output terminal. |
| 44 | TSN | I | Tracking output amplifier (TS Amp) reversed phase input terminal. |

## TEST MODE

1. How to Activate CD Test Mode
   Insert the AC plug while pressing the function CD button.
   All FL display tubes will light up, and the test mode will be activated.

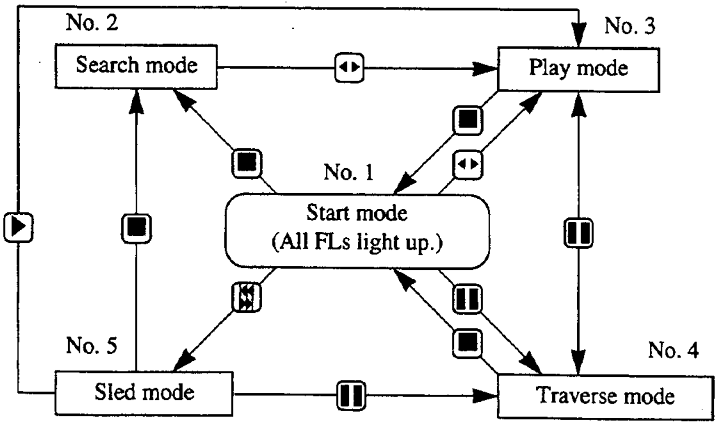
2. How to Cancel CD Test Mode
   Either one of the following operations will cancel the CD test mode.
   - Press the function button. (except CD function button)
   - Press the power switch button.
   - Disconnect the AC plug

3. CD Test Mode Functions
   When test mode is activated, the following mode functions from No.1 to No.5 can be used by pressing the operation keys.

| Mode/No. | Operation | FL display | Operation | Contents |
|---|---|---|---|---|
| Start mode<br>No.1 | Activation | All lamps light | • Test mode is activated. | • FL display check (All displays light.) |
| Search mode<br>No.2 | ■ key | CD-- | • Laser diode turns always ON. (CD block power is ON.)<br>• Continual focus search (The pickup lens repeats the full-swing up-down motion.)<br>* Avoid continual searches that last for more than 10 minutes.<br>* NOTE 1 | • APC circuit check<br>• Laser current measurement (Laser current control. Across a resistor connected between emitter and GND.)<br>FOCUS SERVO<br>• Check focus search waveform<br>• Check focus error waveform (FOK/FZC are not monitored in the search mode) |
| Play mode<br>No.3 | ◀▶ key | CD11 | • Normal playback<br>• Focus search is continued if TOC cannot be read.<br>* NOTE 1 | FOCUS SERVO/TRACKING SERVO<br>CLV SERVO/SLED SERVO<br>Check FOK/FZC |
| Traverse mode<br>No.4 | ❚❚ key | CD11 | • During normal disc playback<br>Press once; tracking servo OFF<br>Press twice; tracking servo ON<br>* NOTE 2 | TRACKING SERVO ON/OFF<br>Tracking balance (traverse) adjustment |
| Sled mode<br>No.5 | ⏮ key<br>⏭ | All lamps light | • Pickup moves to the outermost track<br>• Pickup moves to the innermost track<br>* NOTE 3<br>(During playback, machine operates normally.) | SLED SERVO<br>Check SLED mechanism operation |

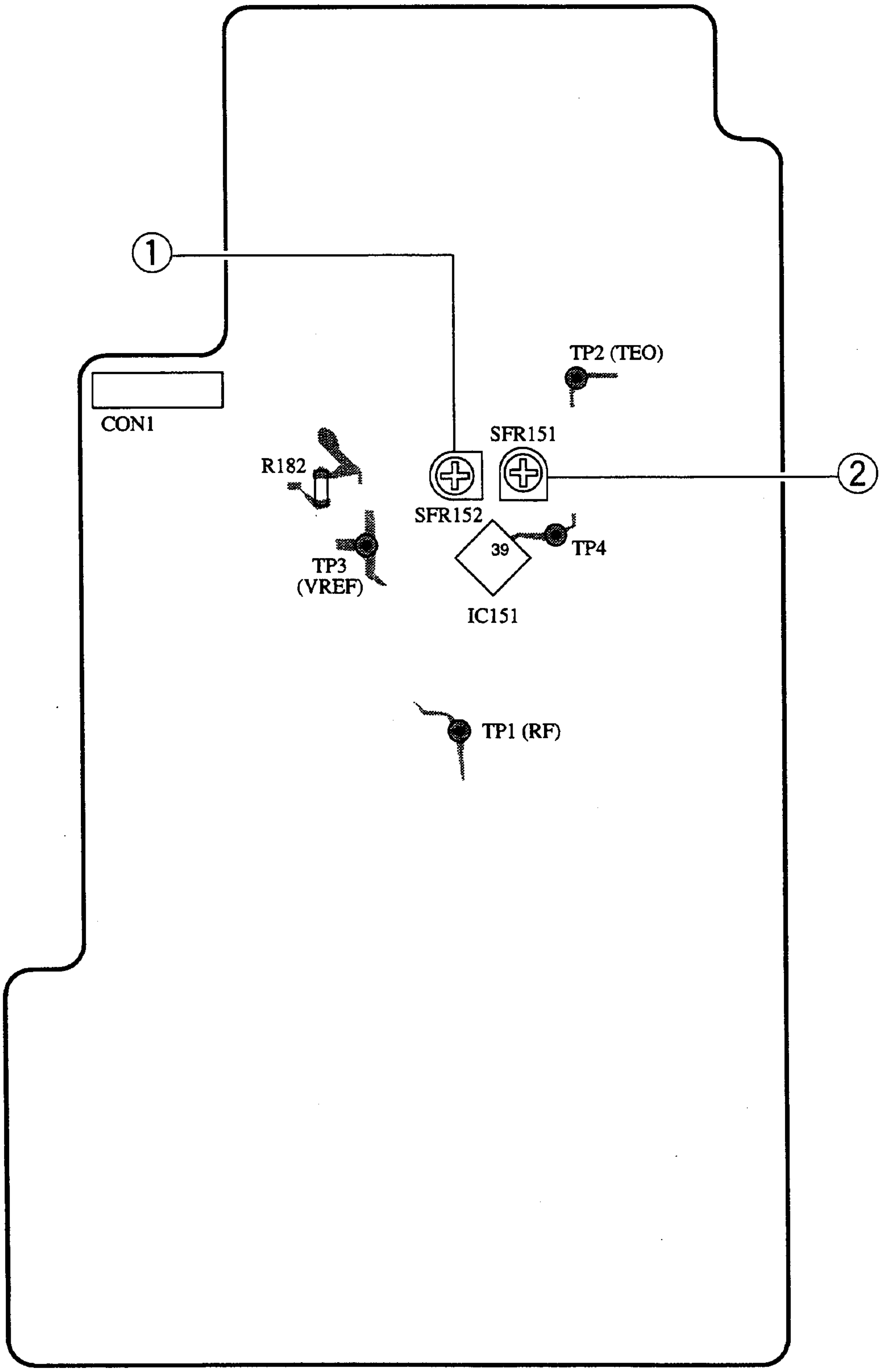
* NOTE 1: There are cases when the tracking servo cannot be locked owing to the protection circuit being operated when heat builds up in the driver IC if the focus search is operated continually for more than 10 minutes. In these cases the power supply should be switched off for 10 minutes until heat has been reduced and then re-started.
* NOTE 2: Do not press the ⏮ or ⏭ keys when the machine is in the ❚❚ status is active. If they are pressed, playback will not be possible after the ❚❚ status has been canceled. If the ⏮ or ⏭ keys are pressed in the ❚❚ status, press the ■ key and return to the start mode (No.1).
* NOTE 3: When pressing the ⏮ or ⏭ keys, take care to avoid damage to the gears. Because the sled motor is activated when the ⏮ or ⏭ keys are pressed, even when the pick-up is at the outermost or innermost track.

4. Operation Outline
   The operation of each mode is carried out in the direction of the arrows from the start mode as indicated in the following illustration.



If the DISC DIRECT PLAY button is pressed, the machine performs the same operation as the PLAY button is pressed as shown. If the tray is opened by pressing OPEN/CLOSE button during Play mode or Traverse mode, the machine returns to the Start mode.

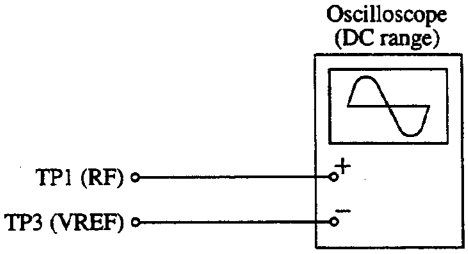
## A 3CD C.B (PATTERN SIDE)


①
②
TP2 (TEO)
CON1
SFR151
R182
SFR152
TP4
39
TP3
(VREF)
IC151
TP1 (RF)

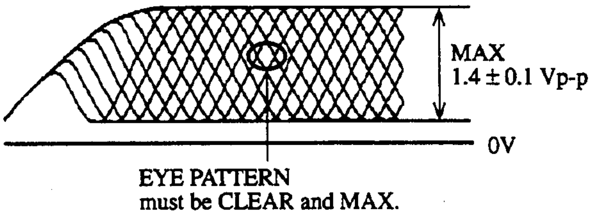
Note:
- Connect a probe (10: 1) of the oscilloscope or the frequency counter to a test point.
- During adjustment, connect (⊖) pin of an oscilloscope to TP3 (VREF).

1. Focus Bias Adjustment

Make the focus bias adjustment when replacing and repairing the optical block.

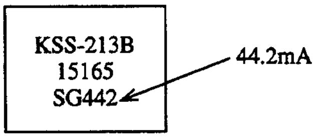

Oscilloscope
(DC range)
TP1 (RF)
TP3 (VREF)
+
–

1) Connect an oscilloscope to test points TP1 (RF) and TP3 (VREF).
2) Turn on the power switch.
3) Insert test disc TCD-782 (YEDS-18) and play back the second program.
4) Adjust SFR152 so that RF signal of the test point TP2 (RF) is MAX and CLEARREST.


MAX
1.4 ± 0.1 Vp-p
0V
EYE PATTERN
must be CLEAR and MAX.

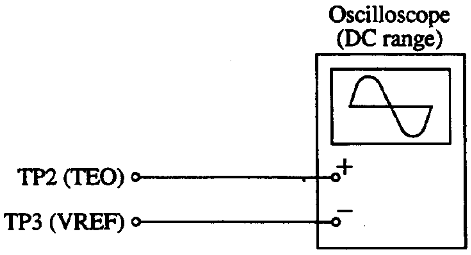
VOLT/DIV: 0.5V
TIME/DIV: 0.5μS

Note : The current of the laser signal can be checked with the voltages on both sides of R182 (voltage across 10Ω). The difference for the specified value shown on the label must be within ± 6.0mA.

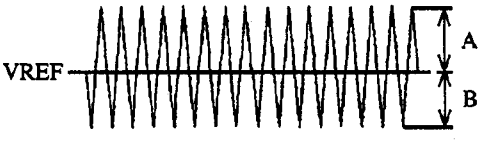

KSS-213B
15165
SG442
44.2mA

$$\text{Laser current Iop} = \frac{\text{Voltage across R182}}{10\Omega}$$

2. Tracking Balance Adjustment


Oscilloscope
(DC range)
TP2 (TEO)
TP3 (VREF)
+
–

1) Short circuit between TP3 (VREF) and TP4.
2) Connect an oscilloscope to test points TP2 (TEO) and TP3 (VREF).
3) Turn on the power switch.
4) Insert test disc TCD-782 (YEDS-18) and press the PLAY (▶) button.
5) Adjust SFR151 so that the waveform on the oscilloscope is vertically symmetrical as shown in the figure below.
6) After the adjustment is completed, remove the connected lead wires from the test point TP3 (VREF) and TP4.



A=B

VOLT/DIV: 20mV
TIME/DIV: 2mS

# 4ZG-1Z

## ELECTRICAL MAIN PARTS LIST

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

IC

| REF. NO. | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| | 87-A20-165-010 | | C-IC,LA9230M |
| | 87-A20-164-010 | | C-IC,LC78630E-T |
| | 87-017-888-089 | | IC,NJM4558MD |
| | 87-070-305-019 | | IC,BA6897S |
| | 87-001-982-019 | | IC,TA7291S |

TRANSISTOR

| REF. NO. | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| | 87-026-463-089 | | TR, 2SA933S (RS) |
| | 89-406-555-089 | | TR,2SD655E |
| | 89-320-011-089 | | TR,2SC2001K |
| | 87-026-223-089 | | C-TR,DTC143TK |
| | 89-113-187-089 | | TR,2SA1318TU |
| | 87-026-470-089 | | TR,HN1C03 F B |
| | 87-026-608-089 | | C-TR,DTC 123 JK |
| | 89-327-125-089 | | C-TR,2SC2712GR<D> |

DIODE

| REF. NO. | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| | 87-020-465-089 | | DIODE,1SS133 |

3CD C.B

| REF. NO. | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| C11 | 87-016-081-089 | | C-CAP,S 0.1-16 RK |
| C12 | 87-012-157-089 | | C-CAP,S 330P-50 CH |
| C13 | 87-016-369-089 | | C-CAP,S 0.033-25 B K |
| C14 | 87-016-081-089 | | C-CAP,S 0.1-16 RK |
| C15 | 87-010-596-089 | | C-CAP,S 0.047-16 RK |
| C16 | 87-010-956-089 | | C-CAP,S 0.068-25 B |
| C17 | 87-010-182-089 | | C-CAP,S 2200P-50 B |
| C18 | 87-016-369-089 | | C-CAP,S 0.033-25 B K |
| C19 | 87-010-213-089 | | C-CAP,S 0.015-25 B |
| C20 | 87-010-178-089 | | C-CAP,S 1000P-50 B |
| C21 | 87-012-393-089 | | C-CAP,S 0.22-16,R,K |
| C22 | 87-016-083-089 | | C-CAP,S 0.15-16 RK |
| C23 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C24 | 87-010-186-089 | | C-CAP,S 4700P-50 B |
| C25 | 87-015-694-089 | | CAP E 0.47-50-7L |
| C26 | 87-010-322-089 | | C-CAP,S 100P-50 CH |
| C27 | 87-015-686-089 | | CAP,E 22-25 7L |
| C28 | 87-015-697-089 | | CAP,E 3.3-50 7L |
| C29 | 87-010-184-089 | | C-CAP,S 3300P-50 B |
| C30 | 87-010-146-089 | | C-CAP,S 2P-50 CH |
| C31 | 87-010-186-089 | | C-CAP,S 4700P-50 B |
| C32 | 87-010-148-089 | | C-CAP,S 4P-50 CH |
| C33 | 87-016-081-089 | | C-CAP,S 0.1-16 RK |
| C35 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C37 | 87-010-405-089 | | CAP,E 10-50 SME |
| C38 | 87-010-263-089 | | CAP,E 100-10 SME |
| C39 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C40 | 87-010-401-089 | | CAP,E 1-50 SME |
| C41 | 87-016-463-089 | | C-CAP,S 0.33-16 B |
| C42 | 87-010-263-089 | | CAP,E 100-10 SME |
| C43 | 87-018-134-089 | | CAP,TC-U 0.01-16 Y |
| C44 | 87-010-263-089 | | CAP,E 100-10 SME |
| C46 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C47 | 87-015-684-010 | | CAP,E 47-16 7L |
| C48 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C50 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C51 | 87-010-263-089 | | CAP,E 100-10 SME |
| C101 | 87-016-081-089 | | C-CAP,S 0.1-16 RK |
| C102 | 87-016-081-089 | | C-CAP,S 0.1-16 RK |
| C103 | 87-012-149-089 | | C-CAP, S 30P-50 CH |
| C105 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C106 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C108 | 87-010-154-089 | | C-CAP,S 10P-50 CH |
| C109 | 87-010-154-089 | | C-CAP,S 10P-50 CH |
| C111 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C112 | 87-010-404-089 | | CAP,E 4.7-50 SME |
| C113 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C114 | 87-010-263-089 | | CAP,E 100-10 SME |
| C201 | 87-010-318-089 | | C-CAP,S 47P-50 CH |
| C202 | 87-010-318-089 | | C-CAP,S 47P-50 CH |
| C203. | 87-010-321-089 | | C-CAP,S 82P-50 CH |
| C204 | 87-010-321-089 | | C-CAP,S 82P-50 CH |
| C205 | 87-010-321-089 | | C-CAP,S 82P-50 CH |
| C206 | 87-010-321-089 | | C-CAP,S 82P-50 CH |
| C207 | 87-010-318-089 | | C-CAP,S 47P-50 CH |
| C208 | 87-010-318-089 | | C-CAP,S 47P-50 CH |
| C209 | 87-010-318-089 | | C-CAP,S 47P-50 CH |
| C210 | 87-010-318-089 | | C-CAP,S 47P-50 CH |
| C211 | 87-010-403-089 | | CAP,E 3.3-50 SME |
| C212 | 87-010-403-089 | | CAP,E 3.3-50 SME |
| C213 | 87-010-186-089 | | C-CAP,S 4700P-50 B |
| C214 | 87-010-186-089 | | C-CAP,S 4700P-50 B |
| C215 | 87-010-555-049 | | CAP,E 100-10 GAS |
| C216 | 87-010-384-089 | | CAP,E 100-25 SME |
| C301 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C302 | 87-010-260-089 | | CAP,E 47-25 SME |
| C501 | 87-010-221-089 | | CAP,E 470-10 11L |
| C502 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C504 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C505 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C506 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C507 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C509 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C510 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C601 | 87-010-197-089 | | C-CAP,S 0.01-25 B |
| C602 | 87-010-381-089 | | CAP,E 330-16 SME |
| C603 | 87-010-196-089 | | C-CAP,S 0.1-25 F |
| C701 | 87-010-322-089 | | C-CAP,S 100P-50 CH |
| C702 | 87-010-322-089 | | C-CAP,S 100P-50 CH |
| C703 | 87-010-322-089 | | C-CAP,S 100P-50 CH |
| C704 | 87-010-322-089 | | C-CAP,S 100P-50 CH |
| C705 | 87-018-131-089 | | CAP,TC-U 1000P-50 B |
| C901 | 87-010-260-089 | | CAP,E 47-25 SME<D> |
| C902 | 87-010-196-089 | | C-CAP,S 0.1-25 F<D> |
| FC1 | 85-NFT-611-119 | | FF-CABLE,16P-1.0 |
| FC4 | 84-ZG1-614-219 | | CABLE,FFC 5P-1.25 |
| FC5 | 84-ZG1-630-019 | | CABLE FFC 6P-1.25 |
| L11 | 87-003-102-089 | | COIL,10UH |
| LED901 | 87-A40-123-019 | | LED,SLZ-8128A-01-B<D> |
| M601 | 87-045-383-019 | | MOT,M9I T2 |
| R102 | 87-022-345-089 | | C-RES,S 1.2K-1/10W F |
| SW701 | 87-036-109-019 | | SW,PUSH SPPB 61 |
| SW702 | 87-036-109-019 | | SW,PUSH SPPB 61 |
| X101 | 87-030-402-089 | | VIB,XTAL 16.9344 MHZ |

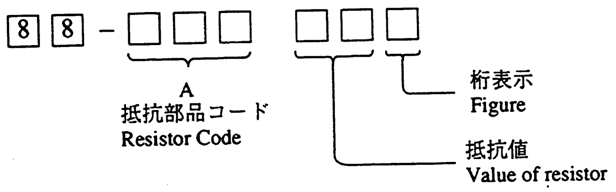
LED C.B

| REF. NO. | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| LED701 | 87-070-200-089 | | LED,SLP636C-81-S-T1 |
| LED702 | 87-017-350-080 | | LED,SEL1550CM |
| LED703 | 87-017-350-080 | | LED,SEL1550CM |
| LED704 | 87-070-200-089 | | LED,SLP636C-81-S-T1 |

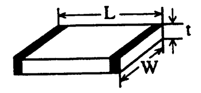
| REF. NO. | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|
| T-T C.B | | | |
| C401 | 87-018-214-089 | | CAP TC U 0.1-50 F |
| M401 | 87-045-364-019 | | MOTOR,(BCH3B14) |
| PS401 | 87-026-573-019 | | P-SNSR,GP1S53V |
| DRIVE C.B | | | |
| M1 | 87-045-358-019 | | MOT,RF-310TA 43 |
| M2 | 87-045-356-019 | | MOT,RF-310TA 30 |
| SW1 | 87-A90-042-019 | | SW,LEAF MSW 17310 MVPO |

○ チップ抵抗部品コード／CHIP RESISTOR PART CODE

チップ抵抗部品コードの成り立ち
Chip Resistor Part Coding


8 8 - □□□ □□□
A
抵抗部品コード
Resistor Code
桁表示
Figure
抵抗値
Value of resistor

チップ抵抗
Chip resistor

| 容量<br>Wattage | 種類<br>Type | 許容誤差<br>Tolerance | 記号<br>Symbol | 寸法／Dimensions (mm)<br>外形／Form | L | W | t | 抵抗コード ：A<br>Resistor Code: A |
|---|---|---|---|---|---|---|---|---|
| 1／16W | 1608 | ±5% | CJ |  | 1.6 | 0.8 | 0.45 | 108 |
| 1／10W | 2125 | ±5% | CJ | | 2 | 1.25 | 0.45 | 118 |
| 1／8W | 3216 | ±5% | CJ | | 3.2 | 1.6 | 0.55 | 128 |

Refer to the following pages for the 4ZG-1 and the common sections.

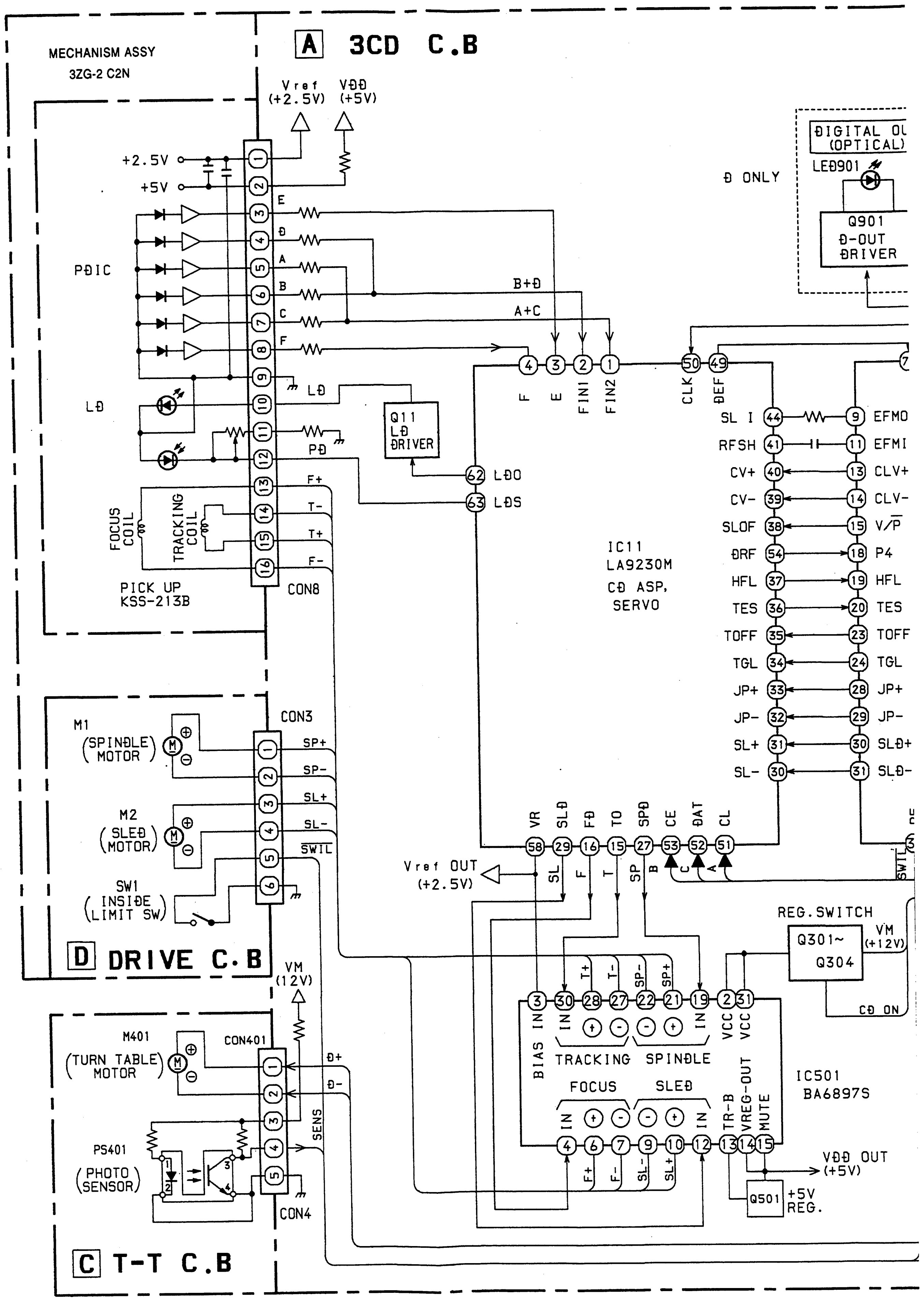
- ■ MECHANICAL EXPLODED VIEW 1／1

  See page 95

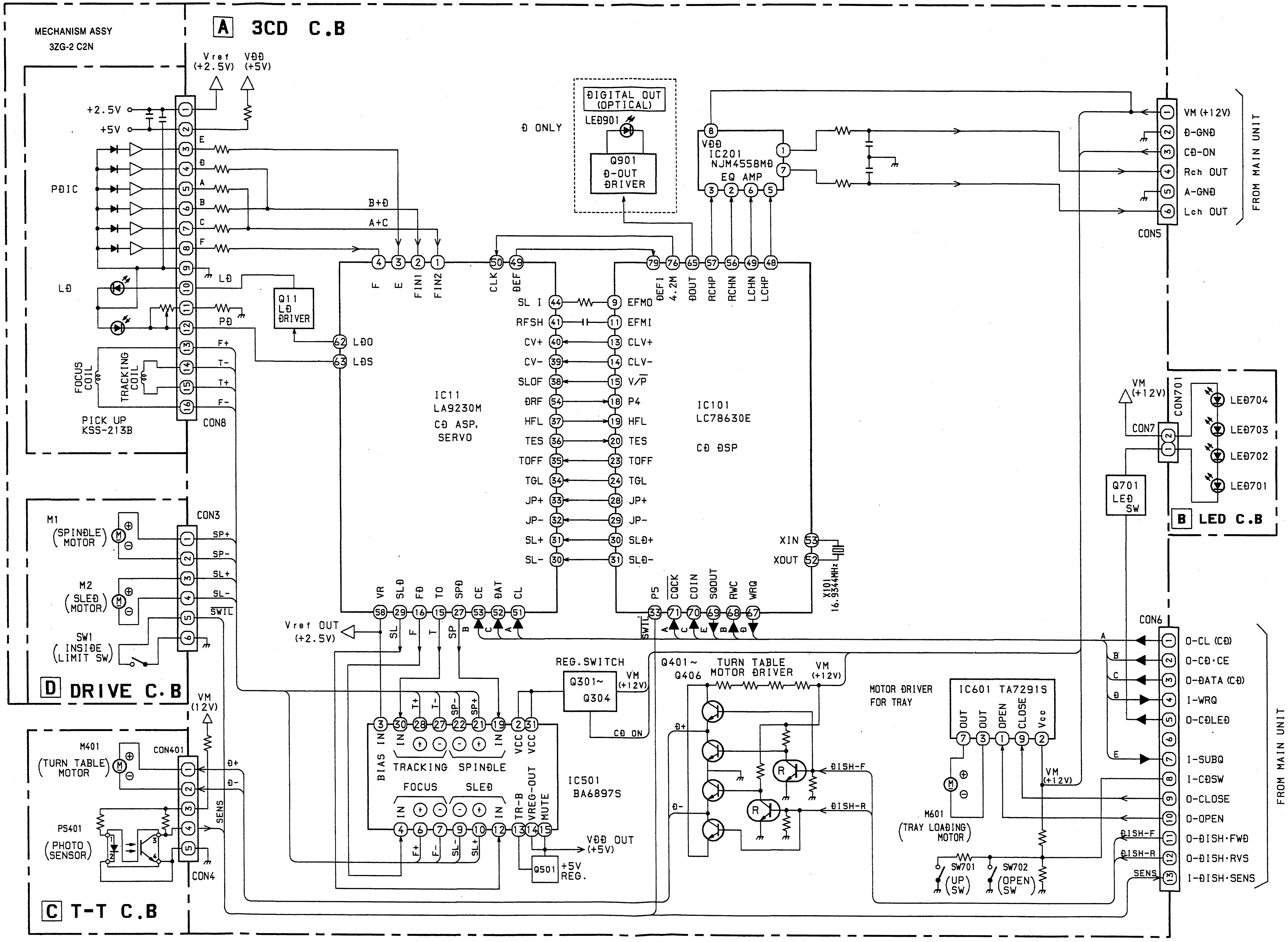
- ■ MECHANICAL PARTS LIST 1／1

  See page 96

## BLOCK DIAGRAM

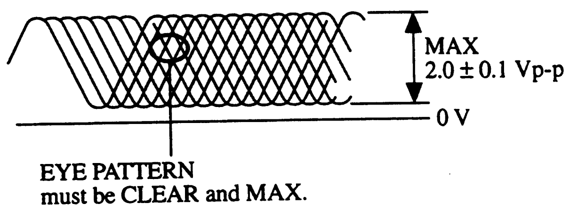

MECHANISM ASSY
3ZG-2 C2N
A 3CD C.B
Vref (+2.5V)
VDD (+5V)
+2.5V
+5V
E
D
A
B
C
F
PDIC
LD
PD
FOCUS COIL
TRACKING COIL
F+
T-
T+
F-
PICK UP KSS-213B
CON8
Q11 LD DRIVER
62 LDO
63 LDS
B+D
A+C
F
E
FIN1
FIN2
CLK
DEF
D ONLY
DIGITAL OU (OPTICAL)
LED901
Q901 D-OUT DRIVER
IC11 LA9230M CD ASP, SERVO
SL I 44
RFSH 41
CV+ 40
CV- 39
SLOF 38
DRF 54
HFL 37
TES 36
TOFF 35
TGL 34
JP+ 33
JP- 32
SL+ 31
SL- 30
9 EFMO
11 EFMI
13 CLV+
14 CLV-
15 V/P
18 P4
19 HFL
20 TES
23 TOFF
24 TGL
28 JP+
29 JP-
30 SLD+
31 SLD-
VR
SLD
FD
TO
SPD
CE
DAT
CL
SL
F
T
SP
B
C
A
Vref OUT (+2.5V)
SWIL
REG.SWITCH
Q301~ Q304
VM (+12V)
CD ON
M1 (SPINDLE MOTOR)
M2 (SLED MOTOR)
SW1 (INSIDE LIMIT SW)
CON3
SP+
SP-
SL+
SL-
SWIL
D DRIVE C.B
VM (12V)
M401 (TURN TABLE MOTOR)
CON401
D+
D-
SENS
PS401 (PHOTO SENSOR)
CON4
C T-T C.B
BIAS IN
IN
TRACKING
SPINDLE
FOCUS
SLED
VCC
TR-B
VREG-OUT
MUTE
T+
T-
SP-
SP+
F+
F-
SL-
SL+
IC501 BA6897S
VDD OUT (+5V)
Q501 +5V REG.

# BLOCK DIAGRAM


MECHANISM ASSY
3ZG-2 C2N
A 3CD C.B
Vref (+2.5V)
VDD (+5V)
+2.5V
+5V
PDIC
LD
FOCUS COIL
TRACKING COIL
PICK UP
KSS-213B
CON8
E
D
A
B
C
F
LD
PD
F+
T-
T+
F-
B+D
A+C
Q11
LD DRIVER
LDO
LDS
D ONLY
DIGITAL OUT (OPTICAL)
LED901
Q901
D-OUT DRIVER
VDD
IC201
NJM4558MD
EQ AMP
VM (+12V)
D-GND
CD-ON
Rch OUT
A-GND
Lch OUT
CON5
FROM MAIN UNIT
F
E
FIN1
FIN2
CLK
DEF
DEFI 4.2M
DOUT
RCHP
RCHN
LCHN
LCHP
SL I
RFSH
CV+
CV-
SLOF
DRF
HFL
TES
TOFF
TGL
JP+
JP-
SL+
SL-
EFMO
EFMI
CLV+
CLV-
V/P
P4
HFL
TES
TOFF
TGL
JP+
JP-
SLD+
SLD-
IC11
LA9230M
CD ASP. SERVO
IC101
LC78630E
CD DSP
XIN
XOUT
X101
16.9344MHz
VR
SLD
FD
TO
SPD
CE
DAT
CL
P5
CQCK
COIN
SQOUT
RWC
WRQ
Vref OUT (+2.5V)
SL
F
T
SP
B
C
A
SWIL
A
C
E
B
D
VM (+12V)
CON701
CON7
LED704
LED703
LED702
LED701
Q701
LED SW
B LED C.B
CON3
M1
(SPINDLE MOTOR)
M2
(SLED MOTOR)
SW1
(INSIDE LIMIT SW)
SP+
SP-
SL+
SL-
SWIL
D DRIVE C.B
VM (12V)
M401
(TURN TABLE MOTOR)
CON401
PS401
(PHOTO SENSOR)
D+
D-
SENS
CON4
C T-T C.B
BIAS IN
IN
T+
T-
SP-
SP+
TRACKING
SPINDLE
FOCUS
SLED
VCC
TR-B
VREG-OUT
MUTE
F+
F-
SL-
SL+
IC501
BA6897S
REG.SWITCH
Q301~
Q304
CD ON
VDD OUT (+5V)
Q501
+5V REG.
Q401~
Q406
TURN TABLE MOTOR DRIVER
DISH-F
DISH-R
MOTOR DRIVER FOR TRAY
IC601 TA7291S
OUT
OUT
OPEN
CLOSE
Vcc
M601
(TRAY LOADING MOTOR)
SW701
(UP SW)
SW702
(OPEN SW)
CON6
O-CL (CD)
O-CD·CE
O-DATA (CD)
I-WRQ
O-CDLED
I-SUBQ
I-CDSW
O-CLOSE
O-OPEN
O-DISH·FWD
O-DISH·RVS
I-DISH·SENS
SENS
FROM MAIN UNIT

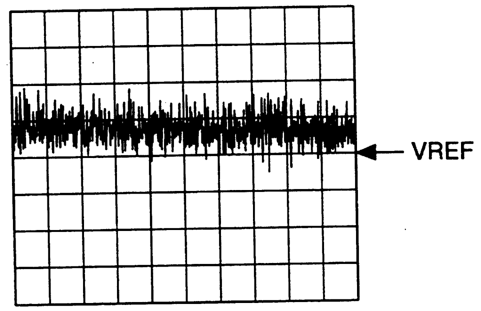
## WAVE FORM

① IC11 Pin ㊶ (RFSM) VOLT/DIV: 0.5V TIME/DIV: 1µS

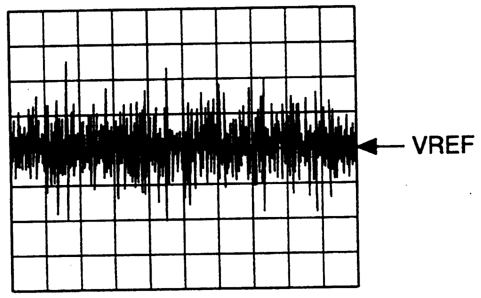


EYE PATTERN must be CLEAR and MAX.

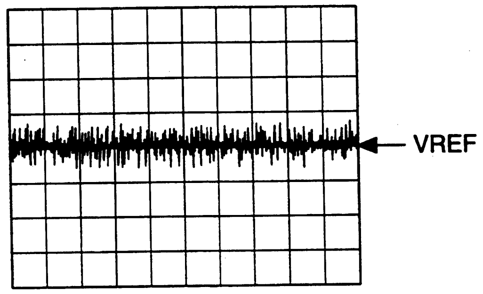
② IC11 Pin ⑯ (FD) VOLT/DIV: 100mV TIME/DIV: 1mS



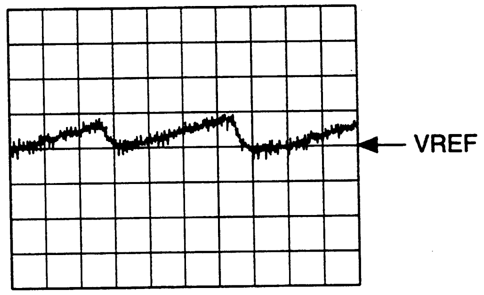
③ IC11 Pin ⑮ (TO) VOLT/DIV: 100mV TIME/DIV: 1mS



④ IC11 Pin ㉗ (SPD) VOLT/DIV: 100mV TIME/DIV: 1mS

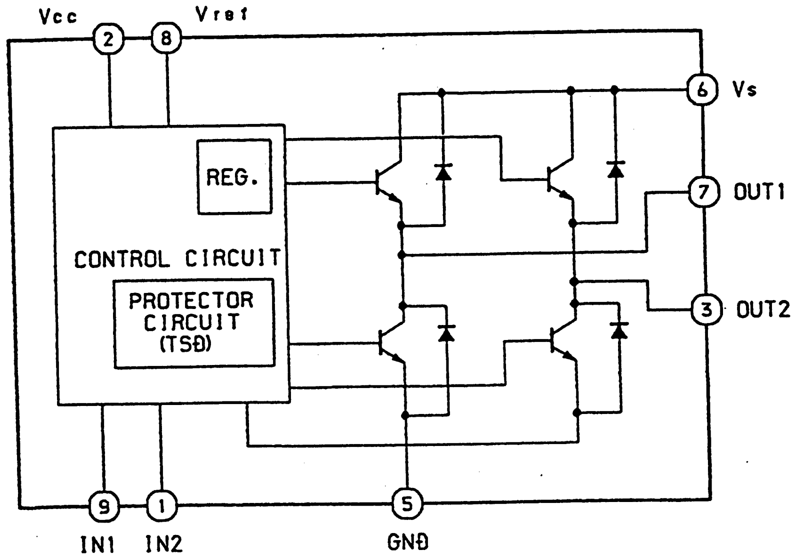


⑤ IC11 Pin ㉙ (SLD) VOLT/DIV: 200mV TIME/DIV: 2S



## IC BLOCK DIAGRAM

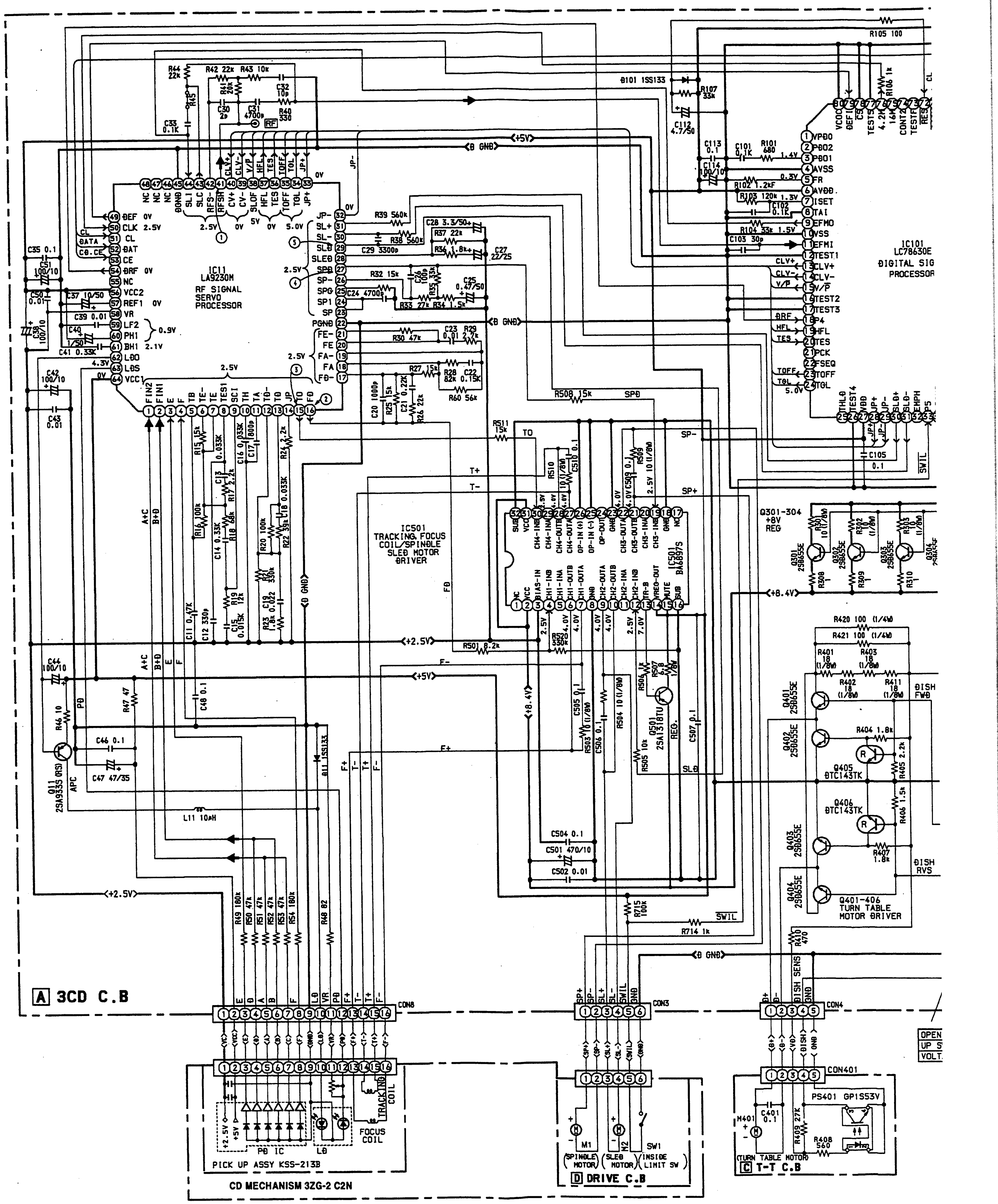
### IC, TA7291


Vcc
Vref
②
⑧
⑥ Vs
⑦ OUT1
③ OUT2
REG.
CONTROL CIRCUIT
PROTECTOR CIRCUIT (TSD)
⑨
①
⑤
IN1
IN2
GND

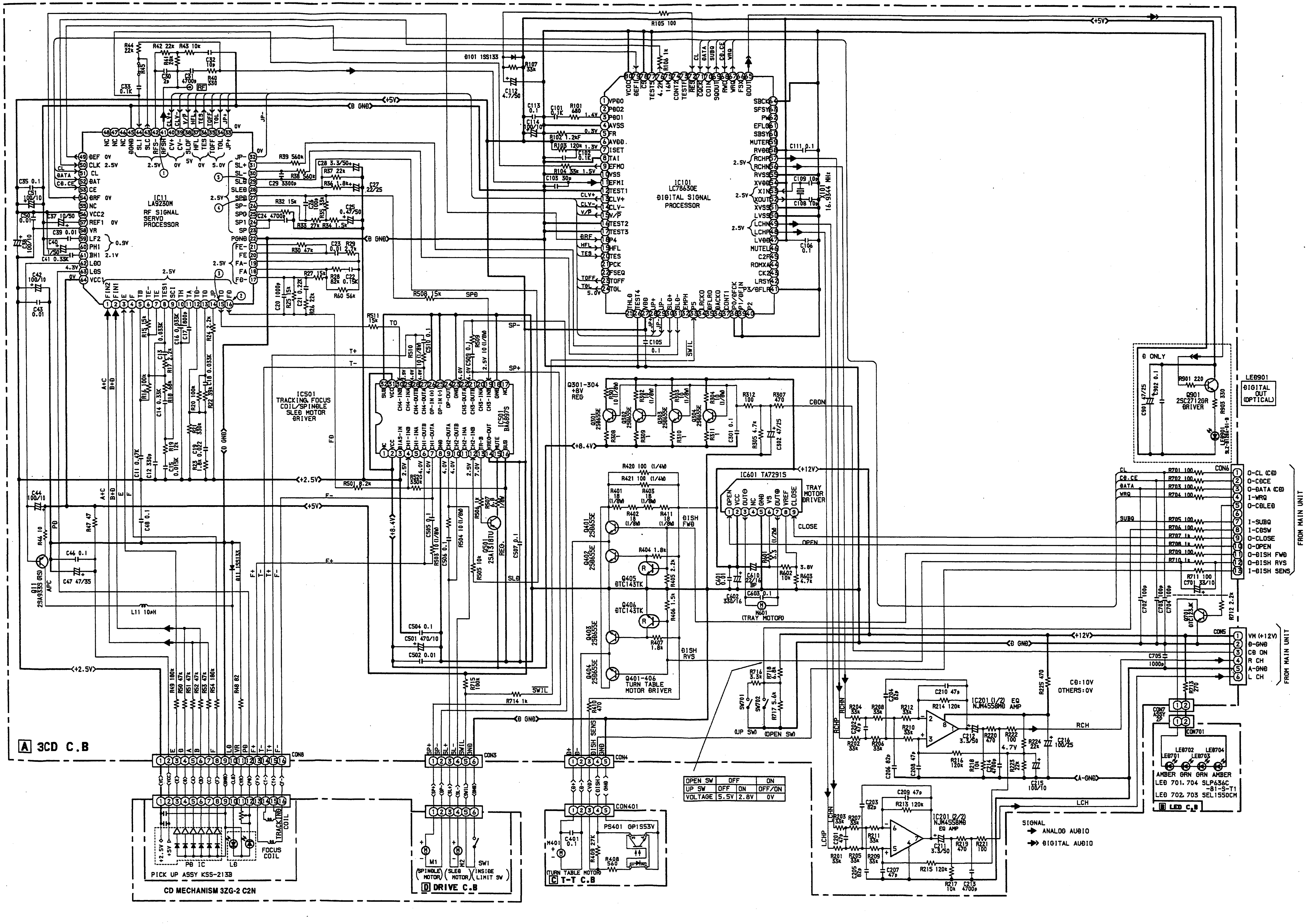
| INPUT | | OUTPUT | | MODE |
|---|---|---|---|---|
| IN1 | IN2 | OUT1 | OUT2 | |
| 0 | 0 | ∞ | ∞ | STOP |
| 1 | 0 | H | L | CW |
| 0 | 1 | L | H | CCW |
| 1 | 1 | L | L | BRAKE |

∞ : HI IMPEDANCE
NOTE : INPUT "H" ACTIVE

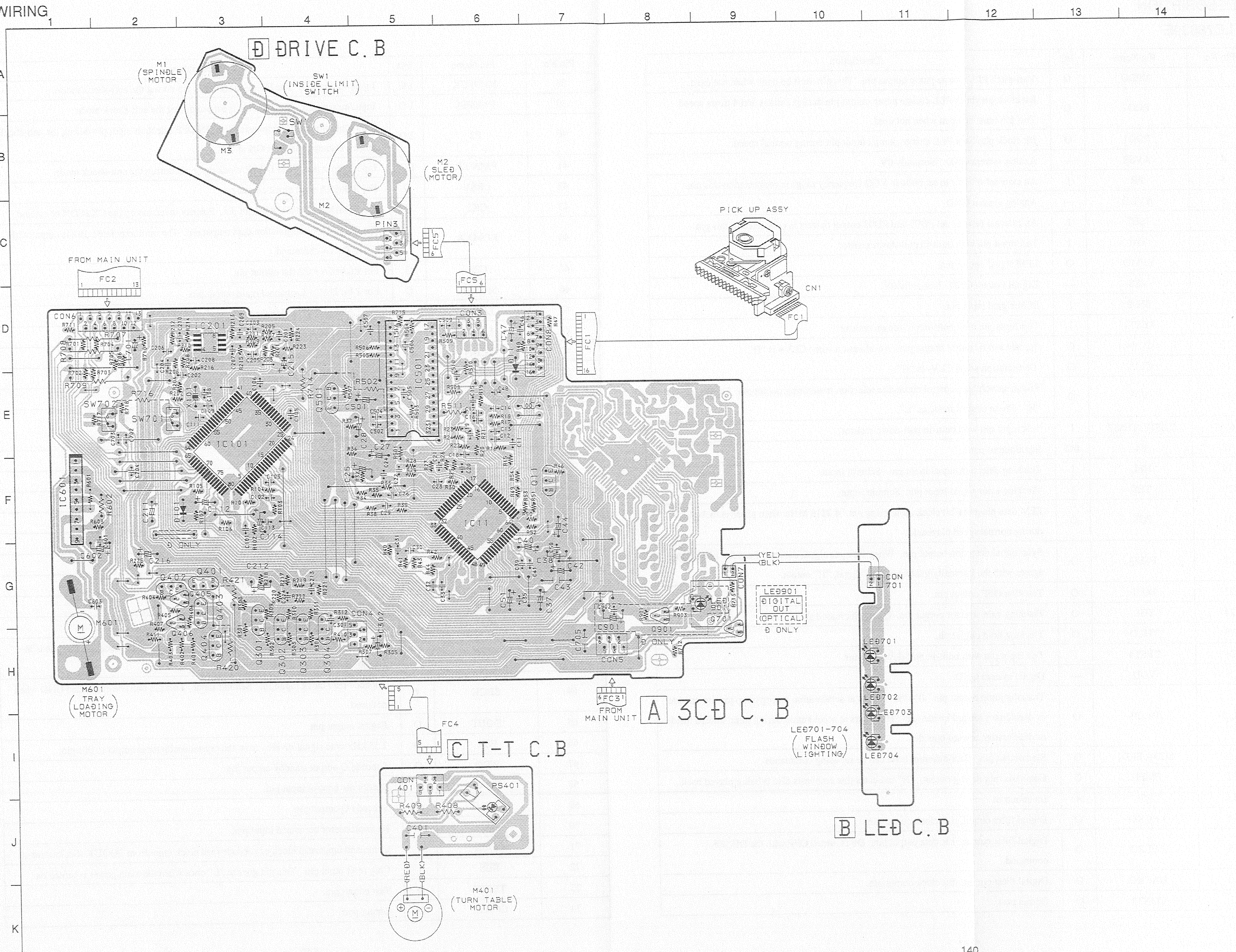
## SCHEMATIC DIAGRAM


IC11 LA9230M RF SIGNAL SERVO PROCESSOR
IC101 LC78630E DIGITAL SIG PROCESSOR
IC501 TRACKING, FOCUS COIL/SPINDLE SLED MOTOR DRIVER
IC501 BA6897S
Q301-304 +8V REG
Q401-406 TURN TABLE MOTOR DRIVER
Q11 2SA9335
Q501 2SA1318TU
Q405 DTC143TK
Q406 DTC143TK
DISH FWD
DISH RVS
A 3CD C.B
CON8
CON3
CON4
CON401
PICK UP ASSY KSS-213B
PD IC
LD
TRACKING COIL
FOCUS COIL
CD MECHANISM 3ZG-2 C2N
M1 SPINDLE MOTOR
M2 SLED MOTOR
SW1 INSIDE LIMIT SW
D DRIVE C.B
PS401 GP1S53V
M401 TURN TABLE MOTOR
C T-T C.B
+5V
+2.5V
+8.4V
D GND
OPEN UP VOLT

# SCHEMATIC DIAGRAM


IC11 LA9230M RF SIGNAL SERVO PROCESSOR
IC101 LC78630E DIGITAL SIGNAL PROCESSOR
IC501 TRACKING, FOCUS COIL/SPINDLE SLED MOTOR DRIVER
IC501 BA6897S
Q301-304 +8V REG
IC601 TA7291S TRAY MOTOR DRIVER
Q401-406 TURN TABLE MOTOR DRIVER
IC201 (1/2) NJM4558MD EQ AMP
IC201 (2/2) NJM4558MD EQ AMP
Q901 2SC2712GR DRIVER
LED901 DIGITAL OUT (OPTICAL)
D ONLY
16.9344 MHz
M601 (TRAY MOTOR)
CD:10V OTHERS:0V
FROM MAIN UNIT
CON6
O-CL (CD)
O-CDCE
O-DATA (CD)
I-WRQ
O-CDLED
I-SUBQ
I-CDSW
O-CLOSE
O-OPEN
O-DISH FWD
O-DISH RVS
I-DISH SENS
CON5
VM (+12V)
D-GND
CD ON
R CH
A-GND
L CH
A 3CD C.B
CON8
CON3
CON4
CON401
PD IC
LD
FOCUS COIL
TRACKING COIL
PICK UP ASSY KSS-213B
CD MECHANISM 3ZG-2 C2N
M1 (SPINDLE MOTOR)
M2 (SLED MOTOR)
SW1 (INSIDE LIMIT SW)
D DRIVE C.B
PS401 GP1S53V
M401 (TURN TABLE MOTOR)
C T-T C.B
SW701 (UP SW)
SW702 (OPEN SW)
OPEN SW | OFF | ON
UP SW | OFF | ON | OFF/ON
VOLTAGE | 5.5V | 2.8V | 0V
LED701 LED702 LED703 LED704
AMBER GRN GRN AMBER
LED 701, 704 SLP636C-81-S-T1
LED 702, 703 SEL1550CM
B LED C.B
CON7 ASSY 2P
CON701
SIGNAL
ANALOG AUDIO
DIGITAL AUDIO

# WIRING


1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
J
K
D DRIVE C.B
M1 (SPINDLE MOTOR)
SW1 (INSIDE LIMIT SWITCH)
M3
M2 (SLED MOTOR)
M2
PIN3
FC5
PICK UP ASSY
CN1
FC1
FROM MAIN UNIT
FC2
CON6
CON3
CON8
IC201
IC101
IC501
IC11
IC601
SW702
SW701
Q501
Q11
Q401
Q402
Q405
Q406
Q404
Q301
Q302
Q303
Q304
Q305
CON4
CON5
CON7
C901
Q901
G701
LED901
D ONLY
M601
M601 (TRAY LOADING MOTOR)
FC4
FC3
FROM MAIN UNIT
A 3CD C.B
(YEL)
(BLK)
CON 701
LED901 DIGITAL OUT (OPTICAL) D ONLY
LED701
LED702
LED703
LED704
LED701-704 (FLASH WINDOW LIGHTING)
B LED C.B
C T-T C.B
CON 401
PS401
R409
R408
C401
(RED)
(BLK)
M401 (TURN TABLE MOTOR)

# IC DESCRIPTION

## IC, LC78630E

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1 | VPDO | O | Vari-pitch PLL charge pump output pin. This pin must be open when not used. |
| 2 | PDO2 | O | Bit clock playback PLL charge pump output pin during 2 times and 4 times speed. This pin must be open when not used. |
| 3 | PDO1 | O | Bit clock playback PLL charge pump output pin during normal speed. |
| 4 | AVSS | — | Analog system GND. Normally 0V. |
| 5 | FR | I | An external resistor to set built-in VCO frequency range is connected to this pin. |
| 6 | AVDD | — | Analog system GND. |
| 7 | ISET | I | An external resistor set PD01 and PD02 output current is connected to this pin. |
| 8 | TAI | I | Test input pin with built-in pull-down resistor. |
| 9 | EFMO | O | EFM signal output pin. |
| 10 | VSS | — | Digital system GND. Normally 0V. |
| 11 | EFMI | I | EFM signal input pin. |
| 12 | TEST1 | I | Test input pin with built-in pull-down resistor. |
| 13 | CLV+ | O | Spindle servo control output pin. Acceleration when CLV+ is “H”. |
| 14 | CLV- | O | Deceleration when CLV- is “H”. |
| 15 | V/$\overline{P}$ | O | Rough servo/phase control automatic selection monitoring output pin. Rough servo at “H”. Phase control mode at “L”. |
| 16, 17 | TEST2, TEST3 | I | Test input pin with built-in pull-down resistor. |
| 18 | P4 | I/O | Input/output port. |
| 19 | HFL | I | Tracking detection signal input pin. Schmitt input. |
| 20 | TES | I | Tracking error signal input pin. Schmitt input. |
| 21 | PCK | O | EFM data playback bit clock monitoring pin. 4.3218 MHz when phase is locked during normal speed playback. |
| 22 | FSEQ | O | Sync signal detection output pin. When the sync signal detected from the EFM signal agrees with the internally generated sync signal, “H” output. |
| 23 | TOFF | O | Tracking OFF output pin. |
| 24 | TGL | O | Tracking gain selector output pin. Gain is increased at “L”. |
| 25 | THLD | O | Tracking hold output pin. |
| 26 | TEST4 | I | Test input pin with built-in pull-down resistor. |
| 27 | VDD | — | Digital system GND. |
| 28, 29 | JP+, JP- | O | Tracking jump output pin. JP+ “H” occurs at acceleration during jump toward outside or decelerator toward inside. JP- “H” occurs at acceleration during jump toward inside or deceleration toward outside. |
| 30, 31 | SLD+, SLD- | O | Sled output pin. Four different level can be set using commands. |
| 32 | EMPH | O | Emphasis monitoring output. “H” indicates that emphasis disc is being played back. |
| 33 | P5 | I/O | Input/output. |
| 34 | LRCKO | O | Digital filter output. LR clock output pin. |
| 35 | DFLRO | O | Digital filter output. LR data output pin. DF is turned OFF with the DFOFF command. |
| 36 | DACKO | O | Digital filter output. Bit clock output pin. |
| 37 | CONT1 | O | Output port. |
| 38 | P0/DFCK | I/O | Input/output port. The DF bit clock input pin during the anti-shock mode. |
| 39 | P1/DFIN | I/O | Input/output port. The DF data input pin during the anti-shock mode. |
| 40 | P2 | I/O | Input/output port. Deemphasis filter ON/OFF selection input pin during the anti-shock mode. Deemphasis filter ON at “H”. |
| 41 | P3/DFLR | I/O | Input/output port. The DF LR clock input pin during the anti-shock mode. |
| 42 | LRSY | O | For ROMXA • LR clock output pin. |
| 43 | CK2 | O | For ROMXA • Bit clock output pin. Polarity inversion by the CK2CON command. |
| 44 | ROMXA | O | For ROMXA • Interpolation data output pin. The un-interpolated data is output with the ROMXA command. |
| 45 | C2F | O | For ROMXA • C2 flat output pin. |
| 46 | MUTEL | O | For 1-bit DAC • L-channel mute output pin. |
| 47 | LVDD | — | For 1-bit DAC • L-channel power supply. |
| 48 | LCHP | O | For 1-bit DAC • L-channel P output pin. |
| 49 | LCHN | O | For 1-bit DAC • L-channel N output pin. |
| 50 | LVSS | — | For 1-bit DAC • L-channel GND. Normally 0 V. |
| 51 | XVSS | — | Crystal oscillator GND. Normally 0 V. |
| 52 | XOUT | O | An external 16.9344 MHz crystal oscillator is connected to this pin. |
| 53 | XIN | I | 33.8688 MHz crystal oscillator is connected during 4 time speed playback. |
| 54 | XVDD | — | Crystal oscillator GND. |
| 55 | RVSS | — | For 1-bit DAC • R-channel GND. Normally 0 V. |
| 56 | RCHN | O | For 1-bit DAC • R-channel N output pin. |
| 57 | RCHP | O | For 1-bit DAC • R-channel P output pin. |
| 58 | RVDD | — | For 1-bit DAC • R-channel power supply. |
| 59 | MUTER | O | For 1-bit DAC • R-channel mute output pin. |
| 60 | SBSY | O | Subcode block sync signal output pin. |
| 61 | EFLG | O | C1 and C2 error correction monitoring pin. |
| 62 | PW | O | ubcode P, Q, R, S, T, U, V and W output pin. |
| 63 | SFSY | O | Subcode frame sync signal output pin. The level falls down when the subcode is in standby. |
| 64 | SBCK | I | Subcode read clock input pin. Schmitt input. This pin must be connected GND when not used. |
| 65 | DOUT | O | Digital output pin. |
| 66 | FSX | O | 7.35 kHz sync signal divided from the crystal oscillator is output to this pin. |
| 67 | WRQ | O | Subcode Q output standby output pin. |
| 68 | RWC | I | Read/write control input pin. |
| 69 | SQOUT | O | Subcode Q output pin. |
| 70 | COIN | I | Microprocessor command input pin. |
| 71 | $\overline{CQCK}$ | I | Command input read clock or subcode read clock input from SQOUT. Schmitt input. |
| 72 | $\overline{RES}$ | I | Chip reset input pin. This pin goes to “L” once when the main power is turned on. |
| 73 | TESTF | O | Test output pin. |
| 74 | CONT2 | O | Output port. |

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 75 | 16M | O | 16.9344 MHz crystal output pin. 33.8688 MHz is output during 4 times speed playback. |
| 76 | 4.2M | O | 4.2336 MHz output pin. |
| 77 | TEST5 | I | Test input pin with built-in pull-down resistor. |
| 78 | $\overline{CS}$ | I | Chip select input pin with built-in pull-down resistor. |
| 79 | DEFI | I | Defect detection signal input pin. This pin must be connected GND when not used. |
| 80 | VCOC | I | Vari-pitch VCO control input pin. This pin must be connected GND when not used. |

## IC, LA9230M

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1 | FIN2 | I | Photo diode of pickup is connected to this pin. This signal is added to the FIN1 pin signal to produce the RF signal and subtracted to produce the FE signal. |
| 2 | FIN1 | I | Photo diode of pickup is connected to this pin. |
| 3 | E | I | Photo diode of pickup is connected to this pin. This signal is subtracted from the F pin signal to produce the FE signal. |
| 4 | F | I | Photo diode of pickup is connected to this pin. |
| 5 | TB | I | DC component of the TE signal is input to this pin. |
| 6 | TE- | I | The TE signal gain adjustment resistor is connected between this pin and the TE pin. |
| 7 | TE | O | The TE signal output pin. |
| 8 | TESI | I | TES (Track Error Sense) comparator input pin. The TE signal is input after passing through band-pass filter. |
| 9 | SCI | I | Shock sense input signal is connected to this pin. |
| 10 | TH | I | Tracking gain time constant setting pin. |
| 11 | TA | O | TA amplifier output pin. |
| 12 | TD- | I | An external tracking phase compensation constant is connected between the TD and VR pins. |
| 13 | TD | I | An external tracking phase compensation setting pin. |
| 14 | JP | I | Tracking jump signal (kick pulse) amplitude setting pin. |
| 15 | TO | O | Tracking control signal output pin. |
| 16 | FD | O | Focusing control signal output pin. |
| 17 | FD- | I | A focusing phase compensation constant is connected between the FD and FA pins. |
| 18 | FA | I | A focusing phase compensation constant is connected between the FD- and FA- pins. |
| 19 | FA- | I | A focusing phase compensation constant is connected between the FA and FE pins. |
| 20 | FE | O | FE signal output pin. |
| 21 | FE- | I | An external FE signal gain setting resistor is connected between the TE and this pins. |
| 22 | AGND | — | Analog signal GND. |
| 23 | SP | O | Single-ended output of the CV+ and CV- pin input signal. |
| 24 | SPI | I | Spindle amplifier input. |
| 25 | SPG | I | An external spindle gain in 12 cm mode setting resistor is connected to this pin. |
| 26 | SP- | I | An external spindle phase compensation constant together with the SPD pin, is connected to this pin. |
| 27 | SPD | O | Spindle control signal output pin. |
| 28 | SLEQ | I | Sled phase compensation constant is connected to this pin. |
| 29 | SLD | O | Sled control signal output pin. |
| 30, 31 | SL-, SL+ | I | Sled advance signal input pin from microprocessor. |
| 32, 33 | JP-, JP+ | I | Tracking jump signal input pin from DSP. |
| 34 | TGL | I | Tracking gain control signal input pin from DSP. Gain low when TGL = "H". |
| 35 | TOFF | I | Tracking off control signal input pin from DSP. Tracking off when TGL = "H". |
| 36 | TES | O | The TES signal is output from this pin to DSP. |
| 37 | HFL | I | The (HIGH FREQUENCY LEVEL) is used to judge whether the main beam is positioned above the bits or mirror. |

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 38 | SLOF | I | Sled servo off control input pin. |
| 39, 40 | CV-, CV+ | I | CLV error signal input pin from DSP. |
| 41 | RFSM | O | RF output pin. |
| 42 | RFS- | I | RF gain setting and 3T compensation constant setting pin together with RFSM pin. |
| 43 | SLC | O | The (SLICE LEVEL CONTROL) is the signal which control the data slice level of the RF waveform with DSP. The (SLICE LEVEL CONTROL) is from this pin. |
| 44 | SLI | I | The input signal which controls the data slice level with DSP, is connected to this pin. |
| 45 | DGND | — | Digital system GND. |
| 46 | NC [FSC] | — | No connection. (Output pin for focus search smoothing capacity.) |
| 47, 48 | NC | — | No connection. |
| 49 | DEF | O | Disc defect detection output pin. |
| 50 | CLK | I | Reference clock input pin. The DSP 4.23 MHz is input to this pin. |
| 51 | CL | I | Microprocessor command clock input pin. |
| 52 | DAT | I | Microprocessor command data input pin. |
| 53 | CE | I | Microprocessor command chip enable input pin. |
| 54 | DRF | O | (DETECT RF) RF level detection output. |
| 55 | NC | — | No connection. |
| 56 | VCC2 | — | Servo system and digital system Vcc pin. |
| 57 | REFI | I | A bypass capacitor for reference voltage is connected to this pin. |
| 58 | VR | O | Reference voltage output pin. |
| 59 | LF2 | I | An external disc defect detection constant is connected to this pin. |
| 60 | PH1 | I | An external RF signal peak holding capacitor is connected to this pin. |
| 61 | BH1 | I | An external RF signal bottom holding capacitor is connected to this pin. |
| 62 | LDD | O | APC circuit output pin. |
| 63 | LDS | I | APC circuit input pin. |
| 64 | VCC1 | — | RF system Vcc pin. |

## TEST MODE

1. How to Activate CD Test Mode
Insert the AC plug while pressing the function CD button.
All FL display tubes will light up, and the test mode will be activated.

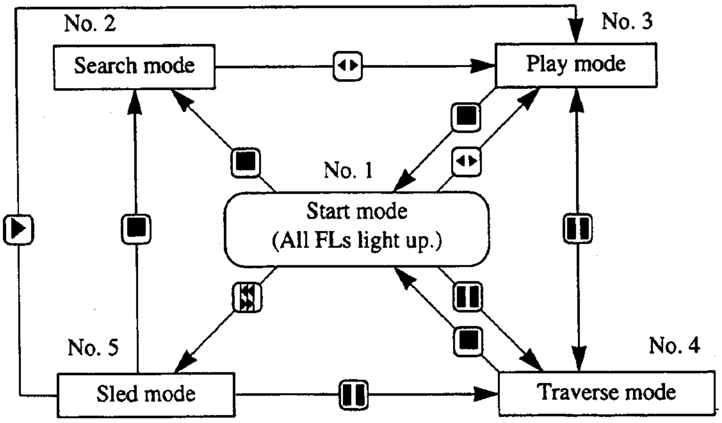
2. How to Cancel CD Test Mode
Either one of the following operations will cancel the CD test mode.
- Press the function button. (except CD function button)
- Press the power switch button.
- Disconnect the AC plug

3. CD Test Mode Functions
When test mode is activated, the following mode functions from No.1 to No.5 can be used by pressing the operation keys.

| Mode/No. | Operation | FL display | Operation | Contents |
|---|---|---|---|---|
| Start mode<br>No.1 | Activation | All lamps light | • Test mode is activated.<br>• CD block power is ON. | • FL display check (All displays light.) |
| Search mode<br>No.2 | ■ key | CD-- | • Laser diode turns always ON.<br>• Continual focus search (The pickup lens repeats the full-swing up-down motion.)<br>* Avoid continual searches that last for more than 10 minutes.<br>* NOTE 1 | • APC circuit check<br>• Laser current measurement (Laser current control. Across a resistor connected between emitter and GND.)<br>FOCUS SERVO<br>• Check focus search waveform<br>• Check focus error waveform (FOK/FZC are not monitored in the search mode) |
| Play mode<br>No.3 | ◀▶ key | CD 1 | • Normal playback<br>• Focus search is continued if TOC cannot be read.<br>* NOTE 1 | FOCUS SERVO/TRACKING SERVO<br>CLV SERVO/SLED SERVO<br>Check DRF |
| Traverse mode<br>No.4 | ▮▮ key | CD 1 | • During normal disc playback<br>Press once; tracking servo OFF<br>Press twice; tracking servo ON<br>* NOTE 2 | TRACKING SERVO ON/OFF<br>Tracking balance (traverse) check |
| Sled mode<br>No.5 | ⏮ key<br>⏭ | All lamps light | • Pickup moves to the outermost track<br>• Pickup moves to the innermost track<br>* NOTE 3<br>(During playback, machine operates normally.) | SLED SERVO<br>Check SLED mechanism operation |

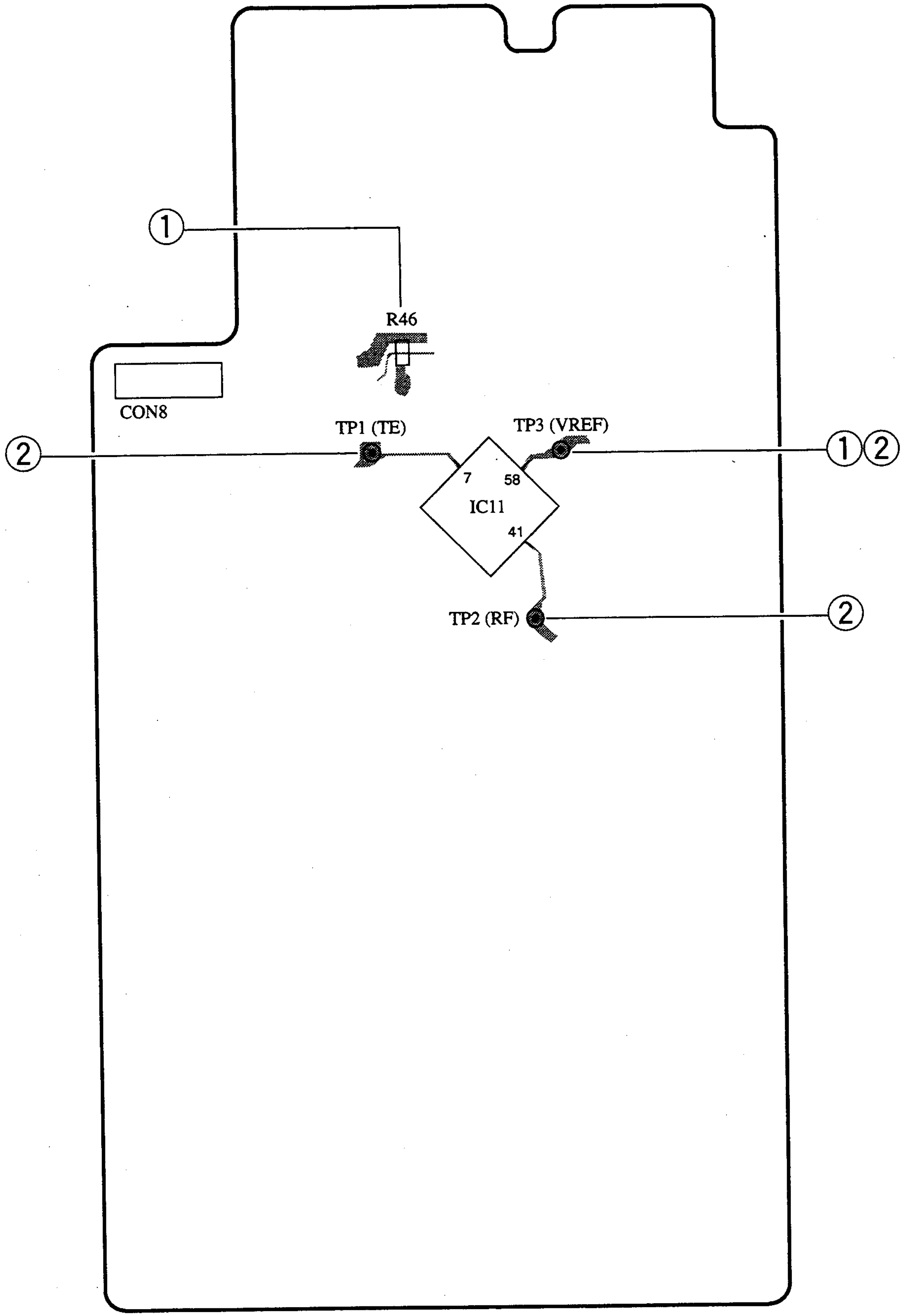
* NOTE 1: There are cases when the tracking servo cannot be locked owing to the protection circuit being operated when heat builds up in the driver IC if the focus search is operated continually for more than 10 minutes. In these cases the power supply should be switched off for 10 minutes until heat has been reduced and then re-started.
* NOTE 2: Do not press the ⏮ or ⏭ keys when the machine is in the ▮▮ status is active. If they are pressed, playback will not be possible after the ▮▮ status has been canceled. If the ⏮ or ⏭ keys are pressed in the ▮▮ status, press the ■ key and return to the start mode (No.1).
* NOTE 3: When pressing the ⏮ or ⏭ keys, take care to avoid damage to the gears. Because the sled motor is activated when the ⏮ or ⏭ keys are pressed, even when the pick-up is at the outermost or innermost track.

4. Operation Outline
The operation of each mode is carried out in the direction of the arrows from the start mode as indicated in the following illustration.



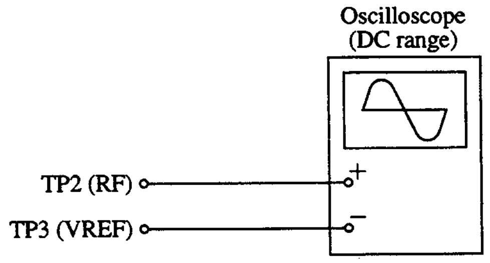
If the DISC DIRECT PLAY button is pressed, the machine performs the same operation as the PLAY button is pressed as shown. If the tray is opened by pressing OPEN/CLOSE button during Play mode or Traverse mode, the machine returns to the Start mode.

## A 3CD C.B (PATTERN SIDE)

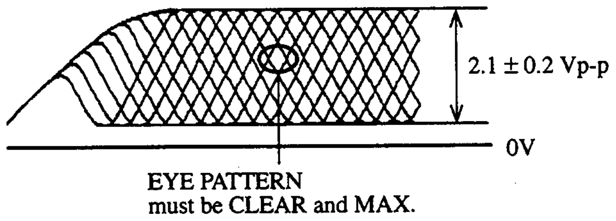

①
R46
CON8
②
TP1 (TE)
TP3 (VREF)
①②
7
58
IC11
41
TP2 (RF)
②

Note:
- Connect a probe (10: 1) of the oscilloscope or the frequency counter to a test point.
- During adjustment, connect (⊖) pin of an oscilloscope to TP3 (VREF).

1. RF waveform Check

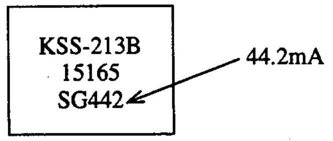

Oscilloscope
(DC range)
TP2 (RF)
TP3 (VREF)
+
−

1) Connect an oscilloscope to test points TP2 (RF) and TP3 (VREF).
2) Turn on the power switch.
3) Insert test disc TCD-782 (YEDS-18) and play back the second program.
4) Confirm that the waveform at oscilloscope has amplitude of 2.1 Vp-p, and clear wedge area in its center.


2.1 ± 0.2 Vp-p
0V
EYE PATTERN
must be CLEAR and MAX.

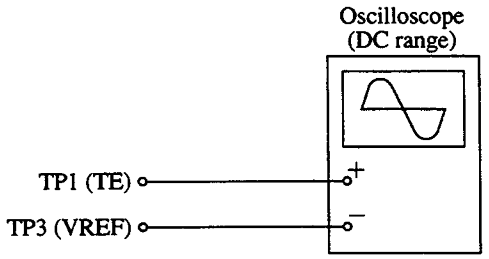
VOLT/DIV: 50mV
TIME/DIV: 0.5µS

Note: The current of the laser signal can be checked with the voltages on both sides of R46 (voltage across 10Ω). The difference for the specified value shown on the label must be within ± 6.0mA.

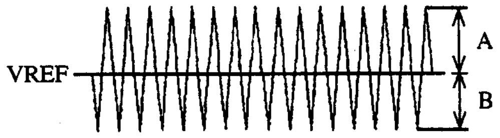

KSS-213B
15165
SG442
44.2mA

$$\text{Laser current Iop} = \frac{\text{Voltage across R46}}{10\Omega}$$

2. Tracking Balance Check


Oscilloscope
(DC range)
TP1 (TE)
TP3 (VREF)
+
−

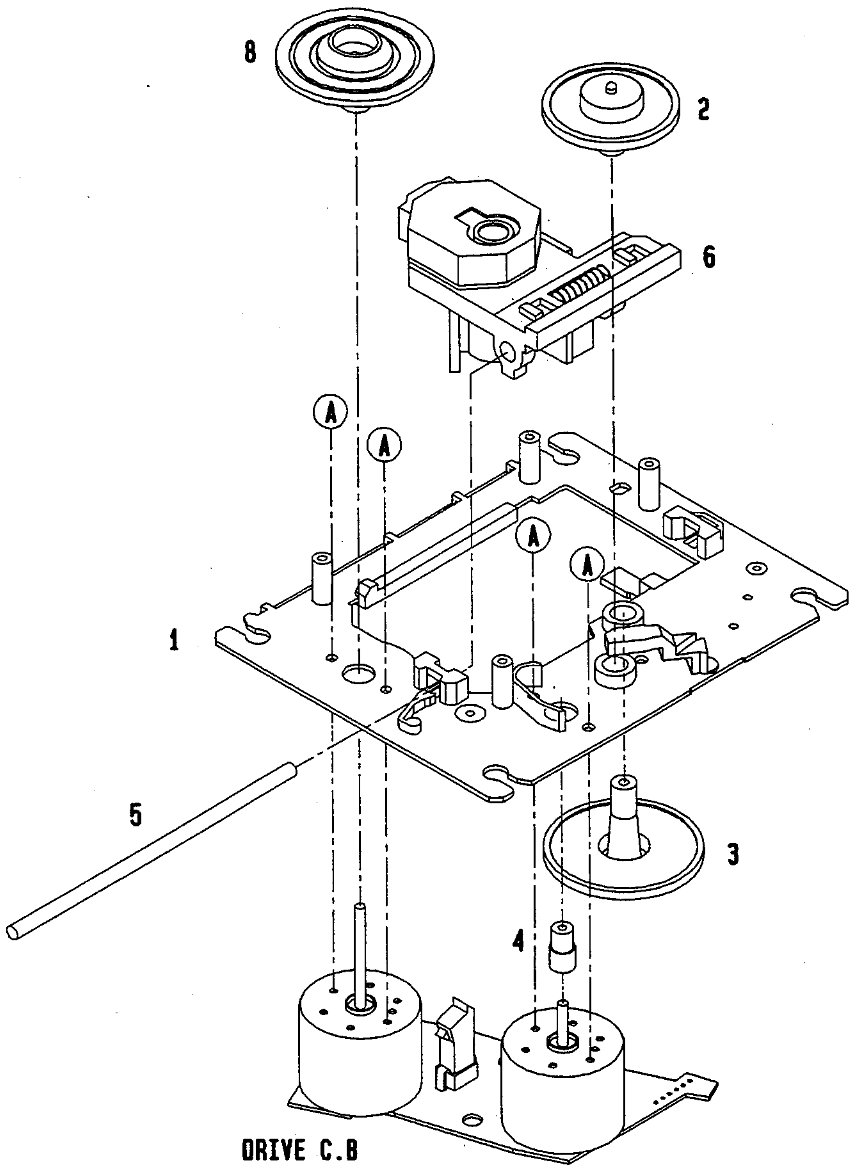
1) Connect an oscilloscope to test points TP1 (TE) and TP3 (VREF).
2) Start up the CD test mode.
3) Insert the test disc TCD-782(YEDS-18) and enter the traverse mode of the CD test mode.
4) Confirm that the traverse waveform on an oscilloscope is vertically symmetrical as shown in the figure below.
5) After confirming the waveform, release the CD test mode.



A=B

VOLT/DIV: 20mV
TIME/DIV: 1mS

## CD MECHANISM EXPLODED VIEW 1 ／ 1 (3ZG-2 C2N <Z>)



## CD MECHANISM PARTS LIST 1 ／ 1 (3ZG-2 C2N <Z>)

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

| REF. NO | PART NO. | カンリ NO. | DESCRIPTION | REF. NO | PART NO. | カンリ NO. | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| 1 | 83-ZG2-202-71K | | O-SERT S ASSY,S | 6 | 87-070-445-010 | | PICK-UP,KSS-213B |
| 2 | 83-ZG2-204-419 | | GEAR,A | 8 | 83-ZG2-233-019 | | TURN TABLE,A5 |
| 3 | 83-ZG2-205-219 | | GEAR,B | A | 87-261-032-219 | | SCREW V+2-3 |
| 4 | 83-ZG2-220-01K | | GEAR MOTOR 2 | | | | |
| 5 | 83-ZG2-207-119 | | SHAFT,SLIDE | | | | |

## USE MODEL LIST

CX-NAV70 (NSX-AV70)
CX-NAV700 (NSX-AV700)
CX-NAV71 (NSX-AV71)
CX-NAV80 (NSX-AV80)
CX-NAV800 (NSX-AV800)
CX-NAV90 (NSX-AV90)
CX-NAV900 (NSX-AV900)
CX-NK300 (NSX-K300)
CX-NK700 (NSX-K700)
CX-NK77 (NSX-K77)
CX-NK80 (NSX-K80)
CX-NK90 (NSX-K90)
CX-NV300 (NSX-V300)
CX-NV3000 (NSX-V3000)
CX-NV3001 (NSX-V3001)
CX-NV390 (NSX-V390)
CX-NV500 (NSX-V500)
CX-NV700 (NSX-V700)
CX-NV705 (NSX-V705)
CX-NV710 (NSX-V710)
CX-NV715 (NSX-V715)
CX-NV720 (NSX-V720)
CX-NV770 (NSX-V770)
CX-NV800 (NSX-V800)
CX-NV8000 (NSX-V8000)
CX-NV8080 (NSX-V8080)
CX-NV820 (NSX-V820)
CX-NV900 (NSX-V900)
CX-NV9000 (NSX-V9000)
CX-NV9090 (NSX-V9090)
CX-NV915 (NSX-V915)
CX-NV929 (NSX-V929)
FD-NAKH8 (NSX-AKH8)
FD-NH8 (NSX-AVH8)
FD-NH8 (NSX-AVH8)
FD-NH80 (NSX-AVH80)
FD-NH9 (NSX-AVH9)
FD-NH9 (NSX-AVH9)
FD-NH90 (NSX-AVH90)
FD-SNAKH8 (NSX-AKH8)
FD-SNH9 (NSX-AVH9)

# REFERENCE NAME LIST

## ELECTRICAL SECTION

| DESCRIPTION | REFERENCE NAME |
|---|---|
| ANT | ANTENNAS |
| C- | CHIP |
| C-CAP | CAP, CHIP |
| C-CAP TN | CAP, CHIP TANTALUM |
| C-COIL | COIL, CHIP |
| C-DI | DIODE, CHIP |
| C-DIODE | DIODE, CHIP |
| C-FET | FET, CHIP |
| C-FOTR | FILTER, CHIP |
| C-JACK | JACK, CHIP |
| C-LED | LED, CHIP |
| C-RES | RES, CHIP |
| C-SFR | SFR, CHIP |
| C-SLIDE SW | SLIDE SWITCH, CHIP |
| C-SW | SWITCH, CHIP |
| C-TR | TRANSISTOR, CHIP |
| C-VR | VOLUME, CHIP |
| C-ZENER | ZENER, CHIP |
| CAP, CER | CAP, CERA-SOL |
| CAP, E | CAP, ELECT |
| CAP, M/F | CAP, FILM |
| CAP, TC | CAP, CERA-SOL |
| CAP, TC-U | CAP, CERA-SOL SS |
| CAP, TN | CAP, TANTALUM |
| CERA FIL | FILTER, CERAMIC |
| CF | FILTER, CERAMIC |
| DL | DELAY LINE |
| E/CAP | CAP, ELECT |
| FILT | FILTER |
| FLTR | FILTER |
| FUSE RES | RES, FUSE |
| MOT | MOTOR |
| P-DIODE | PHOTO DIODE |
| P-SNSR | PHOTO SENSER |
| P-TR | PHOTO TRANSISTOR |
| POLY VARI | VARIABLE CAPACITOR |
| PPCAP | CAP, PP |
| PT | POWER TRANSFORMER |
| PTR, RES | PTR, MELF |
| RC | REMOTE CONTROLLER |
| RES NF | RES, NON-FLAMMABLE |
| RESO | RESONATOR |
| SHLD | SHIELD |
| SOL | SOLENOID |
| SPKR | SPEAKER |
| SW, LVR | SWITCH, LEVER |
| SW, RTRY | SWITCH, ROTARY |
| SW, SL | SWITCH, SLIDE |
| TC CAP | CAP, CERA-SOL |
| THMS | THERMISTOR |
| TR | TRANSISTOR |
| TRIMMER | CAP, TRIMMER |
| TUN-CAP | VARIABLE CAPACITOR |
| VIB, CER | RESONATOR, CERAMIC |
| VIB, XTAL | RESONATOR, CRYSTAL |
| VR | VOLUME |
| ZENER | DIODE, ZENER |
| サージサプレッサ | SERGESUPPRESSOR |
| セラコン | CAP,CERA |

## MECHANICAL SECTION

| DESCRIPTION | REFERENCE NAME |
|---|---|
| ADHESHIVE | SHEET ADHESHIVE |
| AZ | AZIMUTH |
| BAR-ANT | BAR-ANTENNA |
| BAT | BATTERY |
| BATT | BATTERY |
| BRG | BEARING |
| BTN | BUTTON |
| CAB | CABINET |
| CASS | CASSETTE |
| CHAS | CHASSIS |
| CLR | COLLAR |
| CONT | CONTROL |
| CRSR | CURSOR |
| CU | CUSHION |
| CUSH | CUSHION |
| DIR | DIRECTION |
| DUBB | DUBBING |
| FL | FRONT LOADING |
| FLY-WHL | FLYWHEEL |
| FR | FRONT |
| FUN | FUNCTION |
| G-CU | G-CUSHION |
| HDL | HANDOL |
| HIMERON | CLOTH |
| HINGE, BAT | HINGE, BATTERY |
| HLDR | HOLDER |
| HT-SINK | HEAT SINK |
| IB | INSTRUCTION BOOKLET |
| IDLE | IDLER |
| IND, L-R | INDICATOR, L-R |
| KEY, CONT | KEY, CONTROL |
| KEY, PRGM | KEY, PROGRAM |
| KNOB, SL | KNOB, SLIDE |
| LBL | LABEL |
| LID, BATT | LID, BATTERY |
| LID, CASS | LID, CASSETTE |
| LVR | LEVER |
| P-SP | P-SPRING |
| PANEL, CONT | PANEL, CONTROL |
| PANEL, FR | PANEL, FRONT |
| PRGM | PROGRAM |
| PULLY, LOAD MO | PULLY, LOAD MOTOR |
| RBN | RIBBON |
| S- | SPECIAL |
| SEG | SEGMENT |
| SH | SHEET |
| SHLD-SH | SHIELD-SHEET |
| SL | SLIDE |
| SP | SPRING |
| SP-SCREW | SPECIAL-SCREW |
| SPACER, BAT | SPACER, BATTERY |
| SPR | SPRING |
| SPR-P | P-SPRING |
| SPR-PC-PUSH | P-SPRING, C-PUSH |
| T-SP | T-SPRING |
| TERM | TERMINAL |
| TRIG | TRIGGER |
| TUN | TUNING |
| VOL | VOLUME |
| W | WASHER |
| WHL | WHEEL |
| WORM-WHL | WORM-WHEEL |
| ジグアーム | ARM,SHAFT |
| ジグガイド | GUIDE,SHAFT |
| ストラップ | STRAP |
| トクナベ | S-SCREW |
| ヒンジ | HINGE |
| ヒンジビス | S-SCREW |
| ビスセレート | SCREW,SERRART |

| サービス技術ニュース | |
|---|---|
| 番号 | 連絡内容 |
| G－　　－ | |
| G－　　－ | |
| G－　　－ | |

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